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**Selected Data on  
Science and Engineering  
Doctorate Awards: 1991**

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**Science and Engineering Education and  
Human Resources Program  
Division of Science Resources Studies  
National Science Foundation**

**92-309**

**Selected Data on  
Science and Engineering  
Doctorate Awards: 1991**

**April 1992**

**Project Officer: Susan T. Hill**

**Science and Engineering Education and  
Human Resources Program  
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## General Notes

The data presented in this report are being released in advance of the publication containing more comprehensive data, all of which were derived from the Survey of Earned Doctorates (SED). They show trends in doctorate production by science and engineering (S&E) field and recipient characteristics, institutions awarding doctorates, and postgraduation plans of recipients.

The SED is conducted annually for the National Science Foundation (NSF) and other Federal agencies by the National Research Council. Information from this survey becomes part of the Doctorate Records File, which is a census of doctorates awarded since 1920 by regionally-accredited universities and colleges. Doctoral degrees such as the Ph.D. or D. Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not.

Data for the SED are collected directly from the individual doctorate recipients. Approximately 94 percent of the annual cohort of doctorate recipients responded to the questionnaire, which is distributed to them through the cooperation of the Graduate Deans. Partial data from public sources are added to the file for nonrespondents; therefore complete counts are presented for conferred doctorates by field of study and sex of recipient. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

These tables present detailed data on (S&E) doctorates recipients, with some totals provided for non-S&E fields. Detailed data on non-S&E fields are published by the National Research Council and by other Federal sponsors of the Survey of Earned Doctorates. The groupings of field specialties into broad fields may differ among the sponsoring agencies according to their missions.

Additional detailed tabulations will be available soon. For further information on the availability of data for S&E doctorate recipients, please contact the Science Resource Analyst concerned:

Susan T. Hill  
Science and Engineering Education and  
Human Resources Program  
Division of Science Resources Studies  
National Science Foundation  
Washington, D.C. 20550

Telephone: (202) 634-4787

## List of Tables

| Tables                                                                                                                                                                       | Page |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 1. Science and engineering (S&E) doctorates awarded, by subfield: 1981-91 .                                                                                                  | 3    |
| 2. Science and engineering (S&E) doctorates awarded to females, by subfield:<br>1981-91 . . . . .                                                                            | 11   |
| 3. Science and engineering (S&E) doctorates awarded, by citizenship status,<br>sex, racial/ethnic group, and major field of recipients: 1981-91 . . . . .                    | 19   |
| 4. Science and engineering (S&E) doctorates awarded, by major field and<br>citizenship status of recipients: 1981-91 . . . . .                                               | 37   |
| 5. Non-U.S. citizens awarded science and engineering doctorates, by country<br>of citizenship and visa type: 1981-91 . . . . .                                               | 44   |
| 6. Institutions conferring science and engineering (S&E) doctorates, by major<br>field: 1991 . . . . .                                                                       | 50   |
| 7. Science and engineering (S&E) doctorates awarded, by citizenship status,<br>major field, and postgraduation plans of recipients: 1991 [Number] . . . .                    | 56   |
| 8. Science and engineering (S&E) doctorates awarded, by citizenship status,<br>major field, and postgraduation plans of recipients: 1991<br>[Percent Distribution] . . . . . | 58   |

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Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91

| Subfield                  | Year of doctorate |        |        |        |        |        |        |        |        |        |        |
|---------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                           | 1981              | 1982   | 1983   | 1984   | 1985   | 1986   | 1987   | 1988   | 1989   | 1990   | 1991   |
| TOTAL, S&E .....          | 17,996            | 18,017 | 18,393 | 18,514 | 18,712 | 19,251 | 19,706 | 20,739 | 21,530 | 22,677 | 23,748 |
| TOTAL, SCIENCES .....     | 15,468            | 15,371 | 15,612 | 15,601 | 15,546 | 15,875 | 15,994 | 16,551 | 16,986 | 17,784 | 18,536 |
| PHYSICAL SCIENCES .....   | 2,627             | 2,694  | 2,802  | 2,845  | 2,916  | 3,090  | 3,212  | 3,317  | 3,244  | 3,492  | 3,602  |
| Physics/astronomy .....   | 1,015             | 1,014  | 1,043  | 1,080  | 1,080  | 1,187  | 1,237  | 1,302  | 1,274  | 1,392  | 1,408  |
| Acoustics .....           | 13                | 11     | 14     | 21     | 10     | 15     | 17     | 16     | 15     | 21     | 12     |
| Astronomy .....           | 50                | 52     | 50     | 42     | 43     | 52     | 46     | 66     | 49     | 52     | 50     |
| Astrophysics .....        | 59                | 50     | 65     | 56     | 57     | 57     | 54     | 64     | 64     | 76     | 75     |
| Atomic/molecular .....    | 66                | 96     | 71     | 77     | 58     | 70     | 79     | 77     | 74     | 87     | 76     |
| Electron(1) .....         | -                 | -      | 1      | 2      | 4      | 2      | 6      | 2      | 4      | 2      | 1      |
| Elementary particle ..... | 119               | 119    | 136    | 138    | 154    | 147    | 159    | 174    | 135    | 163    | 182    |
| Fluids .....              | 14                | 13     | 15     | 11     | 16     | 6      | 21     | 17     | 14     | 17     | 14     |
| Nuclear(2) .....          | 63                | 53     | 90     | 72     | 86     | 89     | 74     | 88     | 81     | 73     | 66     |
| Optics .....              | 54                | 42     | 50     | 53     | 51     | 58     | 50     | 65     | 78     | 76     | 84     |
| Plasma .....              | 65                | 69     | 72     | 73     | 55     | 61     | 72     | 65     | 61     | 42     | 58     |
| Polymer(3) .....          | -                 | -      | 10     | 8      | 11     | 11     | 15     | 20     | 7      | 11     | 17     |
| Solid state .....         | 253               | 235    | 222    | 258    | 248    | 280    | 287    | 252    | 296    | 306    | 371    |
| Thermal(4) .....          | 7                 | -      | -      | -      | -      | -      | -      | -      | -      | -      | -      |
| Physics, general .....    | 164               | 167    | 150    | 170    | 176    | 222    | 238    | 271    | 269    | 323    | 247    |
| Physics, other .....      | 88                | 107    | 97     | 99     | 111    | 117    | 119    | 125    | 127    | 143    | 155    |
| Chemistry .....           | 1,612             | 1,680  | 1,759  | 1,765  | 1,836  | 1,903  | 1,975  | 2,015  | 1,970  | 2,100  | 2,194  |
| Analytical .....          | 229               | 190    | 264    | 228    | 285    | 257    | 314    | 301    | 289    | 293    | 303    |
| Inorganic .....           | 188               | 226    | 215    | 233    | 251    | 260    | 240    | 250    | 256    | 242    | 259    |
| Nuclear .....             | 12                | 20     | 13     | 18     | 7      | 18     | 13     | 7      | 6      | 13     | 14     |
| Organic .....             | 494               | 519    | 503    | 525    | 494    | 511    | 511    | 531    | 511    | 452    | 537    |
| Pharmaceutical .....      | 52                | 55     | 78     | 56     | 60     | 58     | 65     | 73     | 64     | 48     | 82     |
| Physical .....            | 275               | 324    | 311    | 329    | 304    | 293    | 302    | 318    | 310    | 325    | 363    |
| Polymer .....             | 62                | 50     | 62     | 63     | 84     | 72     | 96     | 81     | 78     | 81     | 111    |
| Theoretical .....         | 33                | 32     | 48     | 37     | 48     | 41     | 46     | 50     | 46     | 55     | 45     |
| Chemistry, general .....  | 193               | 175    | 177    | 183    | 213    | 289    | 297    | 310    | 312    | 524    | 407    |
| Chemistry, other .....    | 74                | 89     | 88     | 93     | 90     | 104    | 91     | 94     | 98     | 67     | 73     |

See footnotes at end of table.

Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91--continued

| Subfield                                   | Year of doctorate |      |      |      |      |      |      |      |      |      |       |
|--------------------------------------------|-------------------|------|------|------|------|------|------|------|------|------|-------|
|                                            | 1981              | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991  |
| <b>EARTH, ATMOS, &amp; OCEAN SCI</b> ..... | 583               | 657  | 637  | 614  | 617  | 589  | 628  | 728  | 740  | 769  | 837   |
| Applied geology(5) .....                   | 21                | 25   | 8    | 7    | 8    | 4    | 5    | 7    | 6    | 6    | 1     |
| Atmos/meteorol sci, gen(3) .....           | -                 | -    | 16   | 5    | 10   | 7    | 16   | 14   | 14   | 23   | 26    |
| Atmos/meteorol sci, other .....            | 33                | 26   | 27   | 12   | 10   | 7    | 13   | 10   | 15   | 2    | 10    |
| Atmospheric dynamics .....                 | 27                | 22   | 16   | 25   | 21   | 16   | 17   | 25   | 16   | 20   | 21    |
| Atmospheric phys/chem .....                | 15                | 17   | 21   | 11   | 16   | 21   | 24   | 19   | 15   | 18   | 20    |
| Environmental sciences(6) .....            | 54                | 53   | 50   | 45   | 42   | 35   | 29   | 58   | 68   | 50   | 35    |
| Geochemistry .....                         | 48                | 51   | 48   | 43   | 48   | 37   | 31   | 46   | 39   | 56   | 63    |
| Geology(7) .....                           | -                 | -    | 105  | 124  | 111  | 118  | 114  | 144  | 165  | 166  | 191   |
| Structural geology(7) .....                | 27                | 25   | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| Geomorph/glacial geology .....             | 13                | 21   | 10   | 9    | 13   | 11   | 18   | 9    | 10   | 14   | 18    |
| Geophysics/seismology(8) .....             | 72                | 81   | 75   | 68   | 92   | 89   | 75   | 83   | 87   | 91   | 113   |
| Hydrology/water res .....                  | 21                | 24   | 20   | 18   | 17   | 16   | 18   | 24   | 24   | 13   | 16    |
| Marine sciences(9) .....                   | -                 | -    | 22   | 21   | 24   | 22   | 38   | 28   | 26   | 39   | 27    |
| Marine sciences, other(9) .....            | 30                | 41   | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| Meteorology(10) .....                      | -                 | -    | 17   | 28   | 23   | 27   | 17   | 35   | 27   | 20   | 31    |
| Minerology, petrology .....                | 30                | 41   | 24   | 28   | 28   | 17   | 24   | 19   | 36   | 26   | 36    |
| Oceanography .....                         | 70                | 92   | 87   | 78   | 68   | 78   | 73   | 81   | 87   | 89   | 85    |
| Paleontology .....                         | 19                | 24   | 17   | 35   | 23   | 16   | 21   | 24   | 17   | 21   | 24    |
| Stratigraphy, sediment .....               | 42                | 47   | 25   | 16   | 23   | 14   | 22   | 30   | 24   | 25   | 29    |
| Geological sciences, gen(11) .....         | -                 | -    | 15   | 10   | 11   | 12   | 18   | 8    | 19   | 31   | 34    |
| Geological sciences, other(11) .....       | -                 | -    | 21   | 25   | 11   | 12   | 29   | 31   | 28   | 28   | 36    |
| Earth sciences, general(11) .....          | 45                | 38   | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| Earth sciences, other(11) .....            | 16                | 29   | -    | -    | -    | -    | -    | -    | -    | -    | -     |
| Physical sciences, other(3) .....          | -                 | -    | 13   | 6    | 18   | 30   | 26   | 33   | 17   | 31   | 21    |
| <b>MATHEMATICS</b> .....                   | 728               | 720  | 701  | 698  | 688  | 729  | 740  | 749  | 859  | 892  | 1,040 |
| Algebra .....                              | 56                | 60   | 55   | 65   | 55   | 46   | 57   | 54   | 50   | 39   | 72    |
| Analysis/funct analysis .....              | 105               | 98   | 76   | 71   | 83   | 81   | 86   | 76   | 103  | 90   | 132   |
| Applied mathematics .....                  | 118               | 108  | 125  | 108  | 116  | 135  | 131  | 142  | 158  | 185  | 192   |
| Computing theory .....                     | 16                | 11   | 12   | 13   | 15   | 10   | 14   | 12   | 12   | 12   | 19    |
| Geometry .....                             | 29                | 32   | 44   | 27   | 35   | 38   | 30   | 44   | 47   | 42   | 66    |
| Logic .....                                | 18                | 17   | 21   | 25   | 30   | 23   | 18   | 20   | 12   | 19   | 23    |
| Number theory .....                        | 163               | 165  | 151  | 181  | 150  | 141  | 143  | 152  | 167  | 157  | 206   |
| Operations research .....                  | 24                | 28   | 19   | 27   | 18   | 20   | 15   | 26   | 23   | 26   | 30    |
| Math probability/stat .....                | 36                | 36   | 20   | 27   | 22   | 29   | 22   | 29   | 22   | 29   | 16    |
| Topology .....                             | 55                | 45   | 44   | 42   | 35   | 34   | 41   | 27   | 37   | 50   | 57    |
| Mathematics, general .....                 | 77                | 84   | 86   | 78   | 85   | 125  | 137  | 134  | 177  | 191  | 182   |
| Mathematics, other .....                   | 31                | 36   | 48   | 34   | 44   | 47   | 46   | 33   | 51   | 52   | 45    |
| <b>COMPUTER/INFORMATION SCI</b> .....      | 232               | 220  | 286  | 295  | 310  | 399  | 450  | 515  | 612  | 705  | 797   |
| Computer sciences .....                    | 232               | 220  | 264  | 256  | 249  | 355  | 384  | 442  | 519  | 612  | 719   |
| Information sci/systems(3) .....           | -                 | -    | 22   | 39   | 61   | 44   | 66   | 73   | 93   | 93   | 78    |

See footnotes at end of table.

Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91--continued

| Subfield                               | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|----------------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                        | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| AGRICULTURAL & BIOLOGICAL SCI          | 4,786             | 4,844 | 4,756 | 4,877 | 4,904 | 4,805 | 4,815 | 5,127 | 5,203 | 5,507 | 5,714 |
| Agricultural sciences .....            | 982               | 951   | 1,015 | 997   | 1,111 | 998   | 976   | 1,015 | 1,088 | 1,176 | 1,072 |
| Agric business & mgmt (12) .....       | -                 | -     | -     | -     | -     | -     | -     | -     | 2     | 2     | 1     |
| Agronomy .....                         | 177               | 159   | 149   | 137   | 158   | 159   | 143   | 141   | 140   | 143   | 117   |
| Animal breeding/genetics(13) .....     | 19                | 22    | 25    | 28    | 28    | 25    | 23    | 27    | 23    | 22    | 18    |
| Animal nutrition(14) .....             | -                 | -     | 56    | 71    | 78    | 65    | 82    | 54    | 67    | 54    | 57    |
| Animal sci/nutrition(14) .....         | 149               | 133   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Dairy science(14) .....                | -                 | -     | -     | -     | -     | -     | -     | 12    | 16    | 20    | 19    |
| Poultry science(14) .....              | -                 | -     | -     | -     | -     | -     | -     | 10    | 11    | 17    | 13    |
| Animal sciences, other(14) .....       | -                 | -     | 92    | 90    | 95    | 91    | 76    | 86    | 95    | 90    | 91    |
| Fish/wildlife(15) .....                | 66                | 65    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Fisheries science(15) .....            | -                 | -     | 36    | 45    | 36    | 32    | 32    | 42    | 34    | 42    | 39    |
| Wildlife management(15) .....          | -                 | -     | 31    | 31    | 38    | 20    | 23    | 3     | -     | -     | -     |
| Wildlife/range mgmt(15) .....          | -                 | -     | -     | -     | -     | -     | -     | 36    | 52    | 58    | 59    |
| Food sciences(16) .....                | 104               | 110   | 141   | 113   | 136   | 121   | 131   | 16    | 1     | -     | -     |
| Food engineering(16) .....             | -                 | -     | -     | -     | -     | -     | -     | 6     | 11    | 10    | 12    |
| Food sciences, other(16) .....         | -                 | -     | -     | -     | -     | -     | -     | 119   | 147   | 141   | 137   |
| Forestry science(17) .....             | 95                | 78    | 90    | 94    | 105   | 88    | 100   | 15    | -     | -     | -     |
| Forest biology(17) .....               | -                 | -     | -     | -     | -     | -     | -     | 21    | 22    | 27    | 17    |
| Forest engineering(17) .....           | -                 | -     | -     | -     | -     | -     | -     | 3     | 1     | 2     | 2     |
| Forest management(17) .....            | -                 | -     | -     | -     | -     | -     | -     | 18    | 21    | 14    | 22    |
| Wood science(17) .....                 | -                 | -     | -     | -     | -     | -     | -     | 7     | 16    | 16    | 16    |
| Renewable natural resources(17) ....   | -                 | -     | -     | -     | -     | -     | -     | 7     | 12    | 16    | 19    |
| Forestry & related sci, other(17) .... | -                 | -     | -     | -     | -     | -     | -     | 35    | 57    | 62    | 45    |
| Horticulture science .....             | 85                | 88    | 72    | 66    | 76    | 60    | 71    | 61    | 75    | 101   | 78    |
| Plant breeding/genetics(18) .....      | -                 | -     | 71    | 78    | 88    | 78    | 70    | 83    | 64    | 87    | 69    |
| Plant pathology(18) .....              | -                 | -     | 92    | 57    | 89    | 85    | 76    | 46    | 63    | 64    | 90    |
| Phytopathology(18) .....               | 99                | 114   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Plant protection-pest mgmt(19) .....   | -                 | -     | -     | -     | -     | -     | -     | 1     | 6     | 4     | 2     |
| Plant sciences, other(18) .....        | -                 | -     | 16    | 20    | 21    | 22    | 20    | 23    | 15    | 23    | 17    |
| Soil sciences(20) .....                | 90                | 83    | 85    | 99    | 97    | 103   | 74    | 18    | -     | -     | -     |
| Soil chem/microbio(20) .....           | -                 | -     | -     | -     | -     | -     | -     | 33    | 28    | 27    | 24    |
| Soil sciences, other(20) .....         | -                 | -     | -     | -     | -     | -     | -     | 62    | 75    | 91    | 78    |
| Agriculture, general .....             | 5                 | 5     | 7     | 1     | 5     | 4     | 5     | 9     | 7     | 5     | 3     |
| Agriculture, other .....               | 93                | 94    | 52    | 67    | 61    | 45    | 50    | 21    | 27    | 38    | 27    |

See footnotes at end of table.

5

Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91--continued

| Subfield                                          | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                   | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| <b>AGRICULTURAL &amp; BIOLOGICAL SCI (con't.)</b> |                   |       |       |       |       |       |       |       |       |       |       |
| Biological sciences .....                         | 3,804             | 3,893 | 3,741 | 3,880 | 3,793 | 3,807 | 3,839 | 4,112 | 4,115 | 4,331 | 4,642 |
| Anatomy .....                                     | 156               | 163   | 107   | 103   | 135   | 86    | 92    | 88    | 80    | 70    | 77    |
| Biochemistry .....                                | 645               | 649   | 647   | 606   | 581   | 576   | 573   | 613   | 669   | 678   | 762   |
| Biometrics/biostatistics .....                    | 48                | 59    | 45    | 49    | 40    | 30    | 37    | 47    | 46    | 47    | 59    |
| Biophysics .....                                  | 99                | 91    | 88    | 90    | 69    | 72    | 86    | 97    | 87    | 103   | 99    |
| Botany, other(21) .....                           | -                 | -     | 116   | 126   | 120   | 121   | 106   | 112   | 117   | 104   | 105   |
| Botany(21) .....                                  | 147               | 146   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Cell biology(22) .....                            | -                 | -     | 118   | 123   | 100   | 130   | 127   | 118   | 133   | 145   | 150   |
| Cytology(22) .....                                | 47                | 41    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Ecology .....                                     | 20                | 10    | 13    | 15    | 15    | 9     | 6     | 7     | 10    | 22    | 37    |
| Develop bio/embryology(23) .....                  | 198               | 173   | 183   | 202   | 200   | 183   | 158   | 155   | 161   | 166   | 190   |
| Endocrinology(3) .....                            | -                 | -     | 28    | 30    | 17    | 17    | 19    | 21    | 21    | 24    | 33    |
| Entomology .....                                  | 143               | 170   | 141   | 156   | 173   | 170   | 123   | 133   | 139   | 147   | 138   |
| Human/animal genetics(24) .....                   | -                 | -     | 95    | 82    | 105   | 91    | 113   | 118   | 112   | 153   | 160   |
| Plant genetics(24) .....                          | -                 | -     | 19    | 20    | 31    | 20    | 26    | 26    | 18    | 31    | 23    |
| Genetics(24) .....                                | 157               | 176   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Human/animal pathology(25) .....                  | -                 | -     | 97    | 88    | 110   | 91    | 127   | 112   | 105   | 101   | 120   |
| Plant pathology(25) .....                         | -                 | -     | 29    | 30    | 38    | 28    | 33    | 30    | 22    | 37    | 50    |
| Pathology(25) .....                               | 106               | 97    | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Human/animal pharmacology .....                   | 280               | 280   | 218   | 237   | 235   | 245   | 234   | 252   | 241   | 243   | 262   |
| Human/animal physiology(26) .....                 | -                 | -     | 246   | 237   | 245   | 240   | 248   | 225   | 272   | 278   | 272   |
| Animal physiology(26) .....                       | 327               | 309   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Plant physiology .....                            | 68                | 56    | 67    | 70    | 58    | 52    | 62    | 74    | 47    | 51    | 65    |
| Immunology .....                                  | 148               | 151   | 154   | 133   | 124   | 146   | 136   | 179   | 152   | 153   | 177   |
| Microbiology(27) .....                            | -                 | -     | 309   | 346   | 289   | 326   | 301   | 333   | 340   | 335   | 373   |
| Bacteriology(27) .....                            | -                 | -     | 10    | 12    | 17    | 12    | 13    | 7     | 11    | 15    | 11    |
| Microbiology/bacteriology(27) .....               | 355               | 324   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Molecular biology .....                           | 187               | 223   | 225   | 275   | 277   | 298   | 303   | 364   | 413   | 413   | 481   |
| Neurosciences .....                               | -                 | 117   | 134   | 145   | 156   | 120   | 153   | 163   | 181   | 192   | 239   |
| Nutritional sciences(28) .....                    | 99                | 120   | 111   | 109   | 113   | 122   | 141   | 127   | 128   | 118   | 106   |
| Parasitology .....                                | 18                | 14    | 9     | 30    | 21    | 25    | 16    | 20    | 20    | 13    | 20    |
| Toxicology(3) .....                               | -                 | -     | 60    | 97    | 99    | 104   | 115   | 108   | 111   | 91    | 86    |
| Zoology, other(29) .....                          | -                 | -     | 192   | 158   | 147   | 155   | 139   | 167   | 132   | 122   | 126   |
| Zoology(29) .....                                 | 198               | 199   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Biological sci, general .....                     | 204               | 196   | 174   | 190   | 190   | 213   | 209   | 256   | 231   | 337   | 278   |
| Biological sci, other .....                       | 154               | 129   | 106   | 121   | 88    | 125   | 123   | 160   | 116   | 142   | 143   |

See footnotes at end of table.

Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91--continued

| Subfield                              | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|---------------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                       | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| <b>SOCIAL SCIENCES</b> .....          | 3,154             | 3,077 | 3,083 | 3,015 | 2,994 | 3,139 | 2,980 | 3,051 | 3,125 | 3,150 | 3,306 |
| Agricultural economics .....          | 168               | 179   | 157   | 158   | 147   | 158   | 136   | 155   | 164   | 144   | 165   |
| Anthropology .....                    | 369               | 333   | 373   | 335   | 353   | 381   | 352   | 325   | 325   | 324   | 340   |
| Area studies .....                    | 20                | 19    | 20    | 23    | 19    | 28    | 17    | 16    | 17    | 22    | 23    |
| Criminology(30) .....                 | 35                | 36    | 49    | 41    | 38    | 24    | 29    | 43    | 32    | 42    | 35    |
| Demography(3) .....                   | -                 | -     | 26    | 19    | 25    | 15    | 26    | 19    | 22    | 20    | 27    |
| Econometrics .....                    | 17                | 24    | 21    | 27    | 27    | 25    | 25    | 27    | 26    | 26    | 24    |
| Economics .....                       | 808               | 737   | 792   | 767   | 785   | 835   | 798   | 826   | 872   | 837   | 853   |
| Geography .....                       | 109               | 106   | 121   | 114   | 120   | 120   | 111   | 129   | 105   | 131   | 108   |
| History of science(31) .....          | 26                | 29    | 13    | 24    | 23    | 24    | 25    | 22    | 20    | 26    | 27    |
| International relations .....         | 87                | 77    | 76    | 95    | 78    | 76    | 82    | 77    | 94    | 97    | 88    |
| Linguistics .....                     | 176               | 191   | 164   | 160   | 176   | 189   | 199   | 166   | 188   | 167   | 227   |
| Political science/government(32) .... | -                 | -     | 397   | 419   | 406   | 414   | 404   | 392   | 430   | 462   | 434   |
| Political science(32) .....           | 445               | 459   | -     | -     | -     | -     | -     | -     | -     | -     | -     |
| Public policy studies(3) .....        | -                 | -     | 69    | 54    | 70    | 81    | 83    | 73    | 79    | 87    | 111   |
| Sociology .....                       | 605               | 568   | 525   | 515   | 461   | 491   | 423   | 449   | 436   | 428   | 466   |
| Statistics .....                      | 40                | 43    | 47    | 39    | 60    | 65    | 49    | 47    | 69    | 69    | 31    |
| Urban studies(33) .....               | 94                | 93    | 74    | 81    | 75    | 50    | 72    | 86    | 62    | 67    | 89    |
| Social sciences, general .....        | 22                | 34    | 17    | 17    | 17    | 36    | 30    | 28    | 26    | 23    | 36    |
| Social sciences, other .....          | 133               | 149   | 142   | 127   | 114   | 127   | 119   | 171   | 158   | 178   | 222   |
| <b>PSYCHOLOGY</b> .....               | 3,358             | 3,159 | 3,347 | 3,257 | 3,117 | 3,124 | 3,169 | 3,064 | 3,203 | 3,269 | 3,240 |
| Clinical .....                        | 1,259             | 1,168 | 1,241 | 1,195 | 1,181 | 1,172 | 1,214 | 1,094 | 1,260 | 1,330 | 1,302 |
| Cognitive(3) .....                    | -                 | -     | 65    | 77    | 76    | 70    | 80    | 83    | 79    | 76    | 94    |
| Comparative .....                     | 11                | 12    | 11    | 13    | 11    | 14    | 9     | 7     | 8     | 8     | 7     |
| Counseling(34) .....                  | 351               | 348   | 432   | 464   | 431   | 449   | 486   | 482   | 501   | 466   | 495   |
| Developmental(35) .....               | 201               | 192   | 219   | 207   | 175   | 184   | 200   | 176   | 148   | 159   | 156   |
| Educational .....                     | 180               | 140   | 154   | 210   | 127   | 106   | 89    | 103   | 105   | 98    | 110   |
| Experimental .....                    | 283               | 240   | 209   | 169   | 165   | 147   | 146   | 135   | 146   | 143   | 142   |
| Industrial/organizational(36) .....   | 87                | 83    | 90    | 106   | 102   | 110   | 107   | 118   | 104   | 125   | 142   |
| Physiological .....                   | 102               | 90    | 94    | 73    | 79    | 73    | 69    | 85    | 62    | 46    | 45    |
| Quantitative(3) .....                 | -                 | -     | 14    | 17    | 16    | 23    | 13    | 12    | 11    | 15    | 7     |
| Personality .....                     | 49                | 36    | 32    | 25    | 21    | 16    | 25    | 18    | 28    | 20    | 13    |
| Psychometrics .....                   | 27                | 8     | 10    | 6     | 10    | 11    | 9     | 11    | 6     | 8     | 9     |
| School .....                          | 133               | 166   | 121   | 89    | 92    | 116   | 93    | 115   | 107   | 82    | 82    |
| Social .....                          | 180               | 179   | 191   | 157   | 167   | 141   | 133   | 140   | 128   | 145   | 147   |
| Psychology, general .....             | 279               | 242   | 292   | 267   | 265   | 308   | 339   | 339   | 358   | 368   | 321   |
| Psychology, other .....               | 216               | 255   | 172   | 182   | 199   | 184   | 157   | 126   | 152   | 180   | 168   |

See footnotes at end of table.

Table 1. Science and engineering (S&amp;E) doctorates awarded, by subfield: 1981-91--continued

| Subfield                             | Year of doctorate |        |        |        |        |        |        |        |        |        |        |
|--------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                      | 1981              | 1982   | 1983   | 1984   | 1985   | 1986   | 1987   | 1988   | 1989   | 1990   | 1991   |
| <b>TOTAL, ENGINEERING</b> .....      | 2,528             | 2,646  | 2,781  | 2,913  | 3,166  | 3,376  | 3,712  | 4,188  | 4,544  | 4,893  | 5,212  |
| Aeronautical/astronautical(37) ..... | 97                | 86     | 106    | 119    | 124    | 118    | 142    | 150    | 178    | 192    | 207    |
| Agricultural .....                   | 64                | 48     | 58     | 74     | 60     | 52     | 74     | 70     | 102    | 101    | 84     |
| Bioengineering/biomedical(38) .....  | 64                | 59     | 74     | 70     | 69     | 67     | 75     | 114    | 115    | 129    | 149    |
| Ceramic .....                        | 24                | 20     | 24     | 25     | 19     | 25     | 42     | 30     | 35     | 43     | 58     |
| Chemical .....                       | 296               | 306    | 349    | 361    | 440    | 476    | 527    | 624    | 625    | 561    | 620    |
| Civil .....                          | 287               | 308    | 354    | 351    | 358    | 387    | 441    | 489    | 498    | 505    | 509    |
| Communications(3) .....              | -                 | -      | 25     | 11     | 30     | 23     | 26     | 24     | 25     | 35     | 21     |
| Computer .....                       | 71                | 72     | 83     | 56     | 55     | 77     | 62     | 100    | 117    | 131    | 178    |
| Electrical/electronics(39) .....     | -                 | -      | 436    | 587    | 629    | 706    | 691    | 886    | 995    | 1,110  | 1,206  |
| Electrical(39) .....                 | 410               | 470    | 66     | 6      | 2      | -      | -      | -      | -      | -      | -      |
| Electronics(39) .....                | 68                | 74     | 15     | -      | -      | -      | -      | -      | -      | -      | -      |
| Engineering mechanics .....          | 78                | 103    | 68     | 91     | 89     | 94     | 113    | 105    | 110    | 111    | 113    |
| Engineering physics .....            | 22                | 12     | 10     | 8      | 12     | 13     | 13     | 9      | 16     | 16     | 23     |
| Engineering science(3) .....         | -                 | -      | 30     | 28     | 31     | 30     | 26     | 32     | 27     | 37     | 42     |
| Environmental health engin(40) ....  | 71                | 60     | 43     | 57     | 33     | 42     | 36     | 43     | 41     | 48     | 64     |
| Industrial .....                     | 66                | 79     | 86     | 84     | 92     | 101    | 120    | 127    | 162    | 151    | 163    |
| Materials science .....              | 113               | 147    | 157    | 168    | 188    | 187    | 238    | 252    | 257    | 307    | 362    |
| Mechanical .....                     | 282               | 334    | 311    | 336    | 424    | 442    | 544    | 610    | 650    | 772    | 761    |
| Metallurgical(41) .....              | 97                | 88     | 87     | 78     | 96     | 93     | 112    | 92     | 88     | 90     | 70     |
| Mining/mineral(42) .....             | 8                 | 7      | 22     | 16     | 16     | 22     | 27     | 17     | 33     | 39     | 38     |
| Naval arch/marine engin(1) .....     | -                 | -      | 4      | 5      | 8      | 9      | 7      | 9      | 9      | 8      | 5      |
| Nuclear .....                        | 130               | 121    | 103    | 120    | 96     | 98     | 84     | 104    | 86     | 114    | 107    |
| Ocean(3) .....                       | -                 | -      | 12     | 11     | 25     | 14     | 24     | 21     | 20     | 17     | 21     |
| Operations research .....            | 80                | 58     | 44     | 50     | 54     | 54     | 51     | 44     | 68     | 46     | 76     |
| Petroleum(43) .....                  | 21                | 27     | 22     | 17     | 24     | 18     | 23     | 33     | 29     | 49     | 28     |
| Polymer(3) .....                     | -                 | -      | 21     | 31     | 40     | 37     | 34     | 28     | 58     | 48     | 42     |
| Systems(44) .....                    | 68                | 49     | 57     | 52     | 57     | 33     | 47     | 44     | 30     | 51     | 48     |
| Engineering, general .....           | 36                | 29     | 30     | 29     | 26     | 55     | 54     | 49     | 61     | 75     | 78     |
| Engineering, other .....             | 75                | 89     | 84     | 72     | 69     | 103    | 79     | 82     | 109    | 107    | 139    |
| <b>TOTAL, NON-S&amp;E(45)</b> .....  | 13,361            | 13,094 | 12,889 | 12,823 | 12,585 | 12,644 | 12,657 | 12,750 | 12,788 | 13,380 | 13,703 |
| <b>TOTAL, ALL FIELDS</b> .....       | 31,357            | 31,111 | 31,282 | 31,337 | 31,297 | 31,895 | 32,363 | 33,489 | 34,318 | 36,057 | 37,451 |

See footnotes at end of table.

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## FOOTNOTES

[A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "polymer physics" was introduced in 1983), or that this subfield was included in the questionnaire for that year but no doctorates were reported.]

- (1) This subfield was introduced in 1983 and deleted in 1991.
- (2) This subfield was changed from "nuclear structure" to "nuclear" in 1983.
- (3) This subfield was introduced in 1983.
- (4) This subfield was deleted in 1982.
- (5) This subfield was changed from "applied geology, geological engineering, and economic geology" to "applied geology" in 1983. "Applied geology" was deleted in 1991.
- (6) "Environmental sciences, general" and "environmental sciences, other" were replaced by "environmental sciences" in 1983.
- (7) "Structural geology" was discontinued in 1983, and "geology" was introduced.
- (8) This subfield was changed from "geophysics, solid earth" to "geophysics and seismology" in 1983.
- (9) "Marine sciences, other" was discontinued in 1983, and "marine sciences" was introduced.
- (10) This subfield had been deleted in 1976, but was restored in 1983.
- (11) "Earth science, general" and "earth science, other" were discontinued in 1983, and "geological sciences, general" and "geological sciences, other" were introduced.
- (12) This subfield was introduced in 1988.
- (13) This subfield was changed from "animal husbandry" to "animal breeding/genetics" in 1983.
- (14) "Animal science and animal nutrition" was separated into "animal nutrition" and "animal sciences, other" in 1983. In 1988 "dairy science" and "poultry science" were introduced.
- (15) "Fish and wildlife" was separated into two subfields in 1983. In 1988 "wildlife management" was discontinued, and "wildlife/range management" was introduced.
- (16) This subfield was changed from "food science and technology" to "food sciences" in 1983. In 1988 "food sciences" was separated into "food distribution," "food engineering," and "food sciences, other."
- (17) In 1988 "forestry science" was separated into "forestry biology," "forest engineering," "forest management," "wood science," "renewable natural resources," and "forestry and related sciences, other."
- (18) "Phytopathology" was discontinued in 1983, and subfields "plant breeding and genetics," "plant pathology," and "plant sciences, other" were introduced.
- (19) This subfield was introduced in 1988 and deleted in 1991.
- (20) This subfield was changed from "soils and soil science" to "soil sciences" in 1983. In 1988 "soil sciences" was separated into "soil chemistry/microbiology" and "soil sciences, other."
- (21) "Botany" was discontinued in 1983, and "botany, other" was introduced.

## FOOTNOTES (continued)

- (22) "Cytology" was discontinued in 1983, and "cell biology" was introduced.
- (23) This subfield was changed from "embryology" to "developmental biology/embryology" in 1990.
- (24) "Genetics" was separated into "plant genetics" and "human and animal genetics" in 1983.
- (25) "Pathology" was separated into "plant pathology" and "human and animal pathology" in 1983.
- (26) "Animal physiology" was discontinued in 1983, and "human and animal physiology" was introduced.
- (27) "Microbiology/bacteriology" was separated into two subfields in 1983.
- (28) This subfield was changed from "nutrition and dietetics" to "nutritional sciences" in 1983.
- (29) "Zoology" was discontinued in 1983, and "zoology, other" was introduced.
- (30) This subfield was introduced in 1980 as "criminology and criminal justice." In 1983 it was changed to "criminology."
- (31) The subfield "history and philosophy of science" was introduced in 1971. The name was changed to "history of science" in 1983.
- (32) "Political science" was discontinued in 1983, and "political science and government" was introduced.
- (33) This subfield was changed from "urban and regional planning" to "urban studies" in 1983.
- (34) This subfield was changed from "counseling and guidance" to "counseling" in 1983.
- (35) This subfield was changed from "developmental and gerontological" to "developmental" in 1983.
- (36) This subfield was changed from "industrial and personnel" to "industrial and organizational" in 1983.
- (37) "Aerospace" was added to "aeronautical/astronautical engineering" in 1983.
- (38) "Bioengineering" was added to "biomedical engineering" in 1983.
- (39) "Electrical" and "electronics" were merged in 1983.
- (40) This subfield was changed from "sanitary and environmental" to "environmental health" in 1983.
- (41) This subfield was changed from "metallurgy and physical metallurgical" to "metallurgical" in 1983.
- (42) This subfield was changed from "mining" to "mining and mineral" in 1983.
- (43) This subfield was changed from "fuel technology and petroleum engineering" to "petroleum" in 1983.
- (44) This subfield was changed from "systems design and systems science" to "systems" in 1983.
- (45) Non-S&E doctorates awarded include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

10

10

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91

| Subfield                  | Year of doctorate |       |       |       |       |       |       |       |       |       |       | Percent female |      |
|---------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|------|
|                           | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  | 1981           | 1991 |
|                           |                   |       |       |       |       |       |       |       |       |       |       |                |      |
| TOTAL, S&E .....          | 4,116             | 4,270 | 4,624 | 4,704 | 4,812 | 5,084 | 5,234 | 5,577 | 6,008 | 6,295 | 6,757 | 22.9           | 28.5 |
| TOTAL, SCIENCES .....     | 4,017             | 4,146 | 4,500 | 4,553 | 4,614 | 4,859 | 4,992 | 5,291 | 5,633 | 5,880 | 6,305 | 26.0           | 34.0 |
| PHYSICAL SCIENCES .....   | 309               | 357   | 371   | 399   | 464   | 505   | 526   | 557   | 617   | 653   | 659   | 11.8           | 18.3 |
| Physics/astronomy .....   | 73                | 84    | 74    | 79    | 102   | 109   | 120   | 130   | 118   | 150   | 152   | 7.2            | 10.8 |
| Acoustics .....           | 2                 | -     | 1     | -     | 3     | 2     | -     | 2     | -     | 2     | 2     | 15.4           | 16.7 |
| Astronomy .....           | 7                 | 11    | 8     | 4     | 5     | 4     | 7     | 13    | 8     | 13    | 7     | 14.0           | 14.0 |
| Astrophysics .....        | 4                 | 5     | 7     | 8     | 6     | 5     | 6     | 3     | 9     | 7     | 6     | 6.8            | 8.0  |
| Atomic/molecular .....    | 8                 | 7     | 6     | 3     | 6     | 6     | 4     | 8     | 8     | 7     | 4     | 12.1           | 5.3  |
| Electron(1) .....         | -                 | -     | -     | -     | 1     | -     | -     | -     | -     | -     | -     | -              | -    |
| Elementary particle ..... | 8                 | 4     | 3     | 8     | 8     | 11    | 15    | 16    | 10    | 14    | 20    | 6.7            | 11.0 |
| Fluids .....              | 3                 | 2     | 2     | 1     | 1     | 2     | -     | -     | 1     | 1     | -     | 21.4           | -    |
| Nuclear(2) .....          | 3                 | 6     | 6     | 8     | 7     | 8     | 4     | 6     | 8     | 5     | 7     | 4.8            | 10.6 |
| Optics .....              | 1                 | 2     | 2     | 3     | 9     | 9     | 5     | 6     | 7     | 5     | 13    | 1.9            | 15.5 |
| Plasma .....              | 2                 | 3     | 2     | 3     | 3     | 3     | 5     | 4     | 4     | 2     | 2     | 3.1            | 3.4  |
| Polymer(3) .....          | -                 | -     | -     | -     | 3     | 3     | 3     | -     | 1     | 3     | 3     | -              | 17.6 |
| Solid state .....         | 20                | 19    | 21    | 18    | 19    | 29    | 24    | 35    | 23    | 35    | 41    | 7.9            | 11.1 |
| Physics, general .....    | 10                | 13    | 9     | 12    | 10    | 18    | 31    | 25    | 19    | 33    | 29    | 6.1            | 11.7 |
| Physics, other .....      | 5                 | 12    | 7     | 11    | 21    | 9     | 16    | 12    | 20    | 23    | 18    | 5.7            | 11.6 |
| Chemistry .....           | 236               | 273   | 297   | 320   | 362   | 396   | 406   | 427   | 499   | 503   | 507   | 14.6           | 23.1 |
| Analytical .....          | 30                | 27    | 46    | 32    | 62    | 46    | 72    | 60    | 63    | 68    | 82    | 13.1           | 27.1 |
| Inorganic .....           | 35                | 42    | 38    | 50    | 47    | 62    | 59    | 66    | 74    | 60    | 73    | 18.6           | 28.2 |
| Nuclear .....             | -                 | 3     | 3     | 3     | 1     | 2     | -     | -     | -     | 2     | 4     | -              | 28.6 |
| Organic .....             | 61                | 78    | 70    | 73    | 79    | 96    | 88    | 89    | 105   | 104   | 108   | 12.3           | 20.1 |
| Pharmaceutical .....      | 5                 | 11    | 16    | 15    | 15    | 17    | 16    | 19    | 21    | 20    | 26    | 9.6            | 31.7 |
| Physical .....            | 51                | 49    | 61    | 63    | 70    | 71    | 59    | 71    | 87    | 76    | 86    | 18.5           | 23.7 |
| Polymer .....             | 5                 | 5     | 12    | 12    | 14    | 12    | 13    | 12    | 15    | 13    | 24    | 8.1            | 21.6 |
| Theoretical .....         | 6                 | 6     | 7     | 5     | 7     | 6     | 17    | 9     | 9     | 14    | 7     | 18.2           | 15.6 |
| Chemistry, general .....  | 25                | 29    | 23    | 40    | 45    | 52    | 53    | 73    | 91    | 128   | 70    | 13.0           | 17.2 |
| Chemistry, other .....    | 18                | 23    | 21    | 27    | 22    | 32    | 29    | 28    | 34    | 18    | 27    | 24.3           | 37.0 |

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

| Subfield                             | Year of doctorate |      |      |      |      |      |      |      |      |      |      | Percent female |      |
|--------------------------------------|-------------------|------|------|------|------|------|------|------|------|------|------|----------------|------|
|                                      | 1981              | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1981           | 1991 |
|                                      |                   |      |      |      |      |      |      |      |      |      |      |                |      |
| EARTH, ATMOS, & OCEAN SCI .....      | 56                | 103  | 97   | 106  | 111  | 100  | 114  | 145  | 150  | 149  | 185  | 9.6            | 22.1 |
| Applied geology(5) .....             | -                 | 2    | -    | 2    | -    | 1    | 1    | 1    | -    | 3    | -    | -              | -    |
| Atmos/meteorol sci, gen(3) .....     | -                 | -    | 1    | 1    | -    | -    | 4    | 1    | 3    | 5    | 2    | -              | 7.7  |
| Atmos/meteorol sci, other .....      | 1                 | 1    | 3    | 3    | -    | 1    | 3    | 1    | 3    | 1    | 1    | 3.0            | 10.0 |
| Atmospheric dynamics .....           | 1                 | 3    | 1    | 2    | 1    | 2    | 3    | 2    | 2    | 4    | 3    | 3.7            | 14.3 |
| Atmospheric phys/chem .....          | 1                 | -    | 1    | -    | 1    | 3    | 4    | -    | 2    | 1    | 2    | 6.7            | 10.0 |
| Environmental sciences(6) .....      | 11                | 11   | 11   | 9    | 6    | 8    | 6    | 16   | 20   | 11   | 13   | 20.4           | 37.1 |
| Geochemistry .....                   | 5                 | 8    | 9    | 7    | 11   | 7    | 9    | 7    | 13   | 9    | 19   | 10.4           | 30.2 |
| Geology(7) .....                     | -                 | -    | 17   | 22   | 21   | 23   | 25   | 36   | 35   | 32   | 34   | -              | 17.8 |
| Structural geology(7) .....          | 1                 | 6    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 3.7            | -    |
| Geomorph/glacial geology .....       | 2                 | 6    | 2    | 1    | 1    | 2    | 2    | 3    | 3    | 1    | 2    | 15.4           | 11.1 |
| Geophysics/seismology(8) .....       | 6                 | 6    | 8    | 7    | 13   | 18   | 11   | 8    | 11   | 15   | 17   | 8.3            | 15.0 |
| Hydrology/water res .....            | 1                 | 3    | 1    | 2    | 1    | 1    | 5    | 5    | 2    | 1    | 2    | 4.8            | 12.5 |
| Marine sciences(9) .....             | -                 | -    | 7    | 6    | 2    | 3    | 3    | 9    | 6    | 7    | 2    | -              | 7.4  |
| Marine sciences, other(9) .....      | 2                 | 9    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 6.7            | -    |
| Meteorology(10) .....                | -                 | -    | -    | 2    | 2    | 2    | -    | 7    | -    | 3    | 7    | -              | 22.6 |
| Minerology, petrology .....          | 5                 | 8    | 6    | 6    | 10   | 4    | 8    | 3    | 5    | 4    | 15   | 16.7           | 41.7 |
| Oceanography .....                   | 7                 | 14   | 18   | 21   | 21   | 8    | 13   | 17   | 20   | 24   | 23   | 10.0           | 27.1 |
| Paleontology .....                   | 1                 | 7    | 2    | 6    | 5    | 7    | 5    | 3    | 4    | 2    | 7    | 5.3            | 29.2 |
| Stratigraphy, sediment .....         | 7                 | 8    | 4    | 2    | 5    | -    | 2    | 8    | 6    | 5    | 8    | 16.7           | 27.6 |
| Geological sciences, gen(11) .....   | -                 | -    | 2    | 3    | 5    | 1    | 3    | 2    | 2    | 5    | 11   | -              | 32.4 |
| Geological sciences, other(11) ..... | -                 | -    | 2    | 4    | 3    | 4    | 5    | 6    | 11   | 8    | 10   | -              | 27.8 |
| Earth sciences, general(11) .....    | 3                 | 5    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 6.7            | -    |
| Earth sciences, other(11) .....      | 2                 | 6    | -    | -    | -    | -    | -    | -    | -    | -    | -    | 12.5           | -    |
| Physical sciences, other(3) .....    | -                 | -    | 2    | -    | 3    | 5    | 2    | 10   | 2    | 8    | 7    | -              | 33.3 |
| MATHEMATICS .....                    | 112               | 96   | 113  | 115  | 106  | 121  | 125  | 121  | 155  | 158  | 194  | 15.4           | 18.7 |
| Algebra .....                        | 14                | 12   | 8    | 13   | 6    | 18   | 10   | 10   | 10   | 6    | 16   | 25.0           | 22.2 |
| Analysis/funct analysis .....        | 8                 | 15   | 8    | 13   | 10   | 11   | 6    | 15   | 20   | 15   | 21   | 7.6            | 15.9 |
| Applied mathematics .....            | 24                | 10   | 21   | 16   | 19   | 20   | 29   | 17   | 28   | 34   | 27   | 20.3           | 14.1 |
| Computing theory .....               | 2                 | -    | 2    | 1    | 1    | -    | 4    | 3    | 1    | 1    | 3    | 12.5           | 15.8 |
| Geometry .....                       | 1                 | 2    | 6    | 6    | 2    | 1    | 3    | 4    | 7    | 8    | 5    | 3.4            | 7.6  |
| Logic .....                          | 1                 | -    | 2    | 1    | 4    | 3    | 2    | 2    | 5    | 3    | 1    | 5.6            | 4.3  |
| Number theory .....                  | 32                | 29   | 27   | 31   | 32   | 27   | 36   | 31   | 38   | 31   | 56   | 19.6           | 27.2 |
| Operations research .....            | 1                 | 4    | 4    | 4    | 2    | 1    | 2    | 5    | 5    | 1    | 8    | 4.2            | 26.7 |
| Math probability/stat .....          | 4                 | 5    | 5    | 1    | 6    | 4    | 1    | 3    | 4    | 2    | 4    | 11.1           | 25.0 |
| Topology .....                       | 11                | 5    | 9    | 10   | 4    | 6    | 3    | 3    | 8    | 11   | 18   | 20.0           | 31.6 |
| Mathematics, general .....           | 8                 | 7    | 8    | 11   | 12   | 20   | 22   | 20   | 17   | 32   | 26   | 10.4           | 14.3 |
| Mathematics, other .....             | 6                 | 7    | 13   | 8    | 8    | 10   | 7    | 8    | 12   | 14   | 9    | 19.4           | 20.0 |
| COMPUTER/INFORMATION SCI .....       | 26                | 20   | 36   | 37   | 33   | 48   | 65   | 56   | 108  | 110  | 116  | 11.2           | 14.6 |
| Computer sciences .....              | 26                | 20   | 33   | 24   | 20   | 39   | 51   | 39   | 69   | 85   | 96   | 11.2           | 13.4 |
| Information sci/systems(3) .....     | -                 | -    | 3    | 13   | 13   | 9    | 14   | 17   | 39   | 25   | 20   | -              | 25.6 |

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

| Year of doctorate                      |       |       |       |       |       |       |       |       |       |       |       |                |      |
|----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|------|
| Subfield                               | 1981  | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  | Percent female |      |
|                                        |       |       |       |       |       |       |       |       |       |       |       | 1981           | 1991 |
| AGRICULTURAL & BIOLOGICAL SCI (con't.) |       |       |       |       |       |       |       |       |       |       |       |                |      |
| Biological sciences .....              | 1,087 | 1,141 | 1,233 | 1,215 | 1,238 | 1,280 | 1,360 | 1,505 | 1,542 | 1,616 | 1,759 | 28.6           | 37.9 |
| Anatomy .....                          | 48    | 62    | 37    | 37    | 45    | 27    | 42    | 32    | 27    | 29    | 31    | 30.8           | 40.3 |
| Biochemistry .....                     | 189   | 166   | 195   | 191   | 184   | 194   | 199   | 203   | 268   | 237   | 285   | 29.3           | 37.4 |
| Biometrics/biostatistics .....         | 12    | 18    | 22    | 18    | 12    | 10    | 14    | 15    | 20    | 18    | 29    | 25.0           | 49.2 |
| Biophysics .....                       | 10    | 13    | 16    | 21    | 7     | 13    | 22    | 21    | 21    | 23    | 26    | 10.1           | 26.3 |
| Botany, other(21) .....                | -     | -     | 39    | 38    | 34    | 42    | 36    | 41    | 52    | 33    | 38    | -              | 36.2 |
| Botany(21) .....                       | 42    | 42    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 28.6           | -    |
| Cell biology(22) .....                 | -     | -     | 41    | 48    | 39    | 44    | 55    | 55    | 57    | 69    | 63    | -              | 42.0 |
| Cytology(22) .....                     | 14    | 18    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 29.8           | -    |
| Ecology .....                          | 10    | 3     | 7     | 8     | 5     | 7     | -     | 3     | 4     | 12    | 20    | 50.0           | 54.1 |
| Develop bio/embryology(23) .....       | 52    | 42    | 37    | 45    | 52    | 40    | 38    | 47    | 36    | 52    | 60    | 26.3           | 31.6 |
| Endocrinology(3) .....                 | -     | -     | 14    | 11    | 4     | 6     | 11    | 10    | 10    | 11    | 16    | -              | 48.5 |
| Entomology .....                       | 13    | 23    | 20    | 29    | 34    | 22    | 25    | 26    | 23    | 26    | 35    | 9.1            | 25.4 |
| Human/animal genetics(24) .....        | -     | -     | 43    | 39    | 49    | 41    | 54    | 57    | 57    | 73    | 71    | -              | 44.4 |
| Plant genetics(24) .....               | -     | -     | 5     | 4     | 8     | 10    | 7     | 6     | 3     | 7     | 5     | -              | 21.7 |
| Genetics(24) .....                     | 62    | 65    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 39.5           | -    |
| Human/animal pathology(25) .....       | -     | -     | 24    | 23    | 35    | 33    | 48    | 43    | 41    | 32    | 45    | -              | 37.5 |
| Plant pathology(25) .....              | -     | -     | 8     | 5     | 8     | 5     | 10    | 9     | 8     | 12    | 12    | -              | 24.0 |
| Pathology(25) .....                    | 27    | 26    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 25.5           | -    |
| Human/animal pharmacology .....        | 69    | 77    | 71    | 60    | 76    | 81    | 86    | 92    | 99    | 91    | 90    | 24.6           | 34.4 |
| Human/animal physiology(26) .....      | -     | -     | 68    | 59    | 70    | 77    | 76    | 89    | 105   | 98    | 102   | -              | 37.5 |
| Animal physiology(26) .....            | 80    | 76    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 24.5           | -    |
| Plant physiology .....                 | 11    | 13    | 24    | 23    | 12    | 18    | 15    | 23    | 15    | 19    | 19    | 16.2           | 29.2 |
| Immunology .....                       | 60    | 58    | 66    | 52    | 54    | 51    | 53    | 91    | 61    | 72    | 76    | 40.5           | 42.9 |
| Microbiology(27) .....                 | -     | -     | 117   | 121   | 113   | 118   | 103   | 120   | 124   | 116   | 150   | -              | 40.2 |
| Bacteriology(27) .....                 | -     | -     | 4     | 4     | 4     | 2     | 6     | 2     | 2     | 4     | 5     | -              | 45.5 |
| Microbiology/bacteriology(27) .....    | 103   | 91    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 29.0           | -    |
| Molecular biology .....                | 69    | 81    | 76    | 103   | 95    | 115   | 116   | 120   | 153   | 152   | 182   | 36.9           | 37.8 |
| Neurosciences .....                    | -     | 38    | 49    | 43    | 58    | 39    | 48    | 60    | 63    | 76    | 88    | -              | 36.8 |
| Nutritional sciences(28) .....         | 59    | 71    | 72    | 68    | 72    | 86    | 97    | 89    | 91    | 88    | 71    | 59.6           | 67.0 |
| Parasitology .....                     | 5     | 2     | -     | 4     | 2     | 3     | 5     | 8     | 5     | 4     | 7     | 27.8           | 35.0 |
| Toxicology(3) .....                    | -     | -     | 16    | 25    | 24    | 33    | 34    | 30    | 39    | 36    | 30    | -              | 34.9 |
| Zoology, other(29) .....               | -     | -     | 63    | 42    | 46    | 44    | 44    | 43    | 35    | 37    | 39    | -              | 31.0 |
| Zoology(29) .....                      | 47    | 45    | -     | -     | -     | -     | -     | -     | -     | -     | -     | 23.7           | -    |
| Biological sci, general .....          | 59    | 62    | 60    | 56    | 62    | 73    | 81    | 97    | 77    | 142   | 112   | 28.9           | 40.3 |
| Biological sci, other .....            | 46    | 49    | 39    | 38    | 34    | 46    | 35    | 63    | 46    | 47    | 52    | 29.9           | 36.4 |

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

| Subfield                               | Year of doctorate |       |       |       |       |       |       |       |       |       |       | Percent female |      |
|----------------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------|------|
|                                        | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  | 1981           | 1991 |
|                                        |                   |       |       |       |       |       |       |       |       |       |       |                |      |
| <b>SOCIAL SCIENCES</b> .....           | 820               | 840   | 920   | 917   | 950   | 1,035 | 936   | 1,045 | 1,036 | 1,040 | 1,199 | 26.0           | 36.3 |
| Agricultural economics .....           | 13                | 20    | 18    | 29    | 21    | 16    | 23    | 31    | 25    | 27    | 36    | 7.7            | 21.8 |
| Anthropology .....                     | 152               | 138   | 175   | 171   | 181   | 197   | 181   | 170   | 148   | 173   | 209   | 41.2           | 61.5 |
| Area studies .....                     | 5                 | 7     | 11    | 2     | 5     | 6     | 5     | 5     | 5     | 9     | 4     | 25.0           | 17.4 |
| Criminology(30) .....                  | 9                 | 17    | 7     | 10    | 10    | 7     | 7     | 15    | 10    | 16    | 18    | 25.7           | 51.4 |
| Demography(3) .....                    | -                 | -     | 12    | 8     | 9     | 6     | 7     | 11    | 10    | 11    | 16    | -              | 59.3 |
| Econometrics .....                     | 1                 | 2     | 4     | 4     | 2     | 2     | 4     | 4     | 2     | 3     | 5     | 5.9            | 20.8 |
| Economics .....                        | 100               | 98    | 129   | 120   | 122   | 163   | 136   | 163   | 171   | 170   | 173   | 12.4           | 20.3 |
| Geography .....                        | 20                | 19    | 37    | 21    | 29    | 39    | 26    | 33    | 25    | 35    | 33    | 18.3           | 30.6 |
| History of science(31) .....           | 5                 | 10    | 7     | 11    | 2     | 10    | 10    | 10    | 9     | 9     | 11    | 19.2           | 40.7 |
| International relations .....          | 12                | 11    | 15    | 13    | 16    | 15    | 15    | 14    | 29    | 15    | 24    | 13.8           | 27.3 |
| Linguistics .....                      | 78                | 90    | 86    | 82    | 91    | 96    | 106   | 83    | 106   | 90    | 110   | 44.3           | 48.5 |
| Political science/government(32) ..... | -                 | -     | 83    | 97    | 107   | 117   | 111   | 96    | 107   | 108   | 118   | -              | 27.2 |
| Political science(32) .....            | 96                | 106   | -     | -     | -     | -     | -     | -     | -     | -     | -     | 21.6           | -    |
| Public policy studies(3) .....         | -                 | -     | 26    | 20    | 24    | 34    | 30    | 25    | 28    | 25    | 38    | -              | 34.2 |
| Sociology .....                        | 242               | 214   | 216   | 226   | 234   | 215   | 168   | 238   | 222   | 207   | 231   | 40.0           | 49.6 |
| Statistics .....                       | 7                 | 5     | 5     | 11    | 14    | 17    | 13    | 9     | 20    | 12    | 10    | 17.5           | 32.3 |
| Urban studies(33) .....                | 17                | 25    | 22    | 21    | 21    | 16    | 22    | 31    | 23    | 21    | 21    | 18.1           | 23.6 |
| Social sciences, general .....         | 5                 | 14    | 3     | 6     | 8     | 13    | 6     | 13    | 9     | 9     | 17    | 22.7           | 47.2 |
| Social sciences, other .....           | 58                | 64    | 64    | 65    | 54    | 66    | 66    | 94    | 87    | 100   | 125   | 43.6           | 56.3 |
| <b>PSYCHOLOGY</b> .....                | 1,473             | 1,438 | 1,597 | 1,631 | 1,541 | 1,598 | 1,695 | 1,676 | 1,797 | 1,907 | 1,984 | 43.9           | 61.2 |
| Clinical .....                         | 557               | 517   | 594   | 598   | 591   | 602   | 667   | 611   | 711   | 782   | 840   | 44.2           | 64.5 |
| Cognitive(3) .....                     | -                 | -     | 31    | 37    | 23    | 33    | 41    | 34    | 33    | 35    | 46    | -              | 48.9 |
| Comparative .....                      | 3                 | 6     | 4     | 9     | 2     | 6     | 6     | 4     | 1     | 3     | 5     | 27.3           | 71.4 |
| Counseling(34) .....                   | 160               | 156   | 199   | 230   | 215   | 237   | 254   | 261   | 284   | 281   | 306   | 45.6           | 61.8 |
| Developmental(35) .....                | 121               | 125   | 148   | 156   | 112   | 117   | 139   | 131   | 116   | 112   | 120   | 60.2           | 76.9 |
| Educational .....                      | 77                | 75    | 75    | 110   | 78    | 58    | 50    | 65    | 60    | 69    | 64    | 42.8           | 58.2 |
| Experimental .....                     | 93                | 97    | 81    | 70    | 65    | 64    | 54    | 61    | 70    | 49    | 64    | 32.9           | 45.1 |
| Industrial/organizational(36) .....    | 22                | 23    | 30    | 40    | 29    | 52    | 49    | 54    | 49    | 53    | 76    | 25.3           | 53.5 |
| Physiological .....                    | 34                | 23    | 27    | 20    | 35    | 30    | 32    | 45    | 33    | 28    | 21    | 33.3           | 46.7 |
| Quantitative(3) .....                  | -                 | -     | 4     | 5     | 4     | 8     | 7     | 5     | 6     | 3     | 2     | -              | 28.6 |
| Personality .....                      | 26                | 17    | 9     | 12    | 9     | 9     | 11    | 8     | 17    | 10    | 4     | 53.1           | 30.8 |
| Psychometrics .....                    | 10                | 1     | 8     | 3     | 3     | 7     | 3     | 6     | 3     | 4     | 3     | 37.0           | 33.3 |
| School .....                           | 73                | 86    | 72    | 50    | 54    | 59    | 53    | 66    | 69    | 53    | 57    | 54.9           | 69.5 |
| Social .....                           | 76                | 85    | 103   | 82    | 94    | 79    | 72    | 75    | 68    | 92    | 86    | 42.2           | 58.5 |
| Psychology, general .....              | 133               | 105   | 133   | 134   | 125   | 149   | 170   | 192   | 200   | 231   | 182   | 47.7           | 56.7 |
| Psychology, other .....                | 88                | 122   | 79    | 75    | 102   | 88    | 87    | 58    | 77    | 102   | 108   | 40.7           | 64.3 |

See footnotes at end of table.

Table 2. Science and engineering (S&amp;E) doctorates awarded to females, by subfield: 1981-91--continued

| Subfield                             | Year of doctorate |        |        |        |        |        |        |        |        |        |        | Percent female |      |
|--------------------------------------|-------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|------|
|                                      | 1981              | 1982   | 1983   | 1984   | 1985   | 1986   | 1987   | 1988   | 1989   | 1990   | 1991   | 1981           | 1991 |
|                                      |                   |        |        |        |        |        |        |        |        |        |        |                |      |
| TOTAL, ENGINEERING .....             | 99                | 124    | 124    | 151    | 198    | 225    | 242    | 286    | 375    | 415    | 452    | 3.9            | 8.7  |
| Aeronautical/astronautical(37) ..... | -                 | 1      | 2      | 2      | 5      | 1      | 10     | 9      | 8      | 4      | 7      | -              | 3.4  |
| Agricultural .....                   | 2                 | 2      | 1      | 1      | 3      | 1      | 3      | 3      | 6      | 7      | 8      | 3.1            | 9.5  |
| Bioengineering/biomedical(38) .....  | 3                 | 6      | 8      | 9      | 11     | 9      | 15     | 18     | 26     | 23     | 27     | 4.7            | 18.1 |
| Ceramic .....                        | 1                 | 1      | 3      | 2      | -      | 3      | 4      | 3      | 4      | 11     | 10     | 4.2            | 17.2 |
| Chemical .....                       | 11                | 17     | 22     | 25     | 35     | 53     | 56     | 60     | 74     | 71     | 72     | 3.7            | 11.6 |
| Civil .....                          | 6                 | 12     | 12     | 19     | 18     | 19     | 17     | 25     | 45     | 39     | 30     | 2.1            | 5.9  |
| Communications(3) .....              | -                 | -      | -      | -      | 2      | -      | -      | 3      | 1      | 2      | 2      | -              | 9.5  |
| Computer .....                       | 8                 | 3      | 6      | 1      | 5      | 5      | 2      | 7      | 12     | 11     | 9      | 11.3           | 5.1  |
| Electrical/electronics(39) .....     | -                 | -      | 6      | 14     | 27     | 33     | 30     | 38     | 54     | 71     | 66     | -              | 5.5  |
| Electrical(39) .....                 | 14                | 17     | 1      | -      | 1      | -      | -      | -      | -      | -      | -      | 3.4            | -    |
| Electronics(39) .....                | -                 | 2      | -      | -      | -      | -      | -      | -      | -      | -      | -      | -              | -    |
| Engineering mechanics .....          | 1                 | 5      | 2      | 9      | 4      | 4      | 3      | 3      | 7      | 9      | 7      | 1.3            | 6.2  |
| Engineering physics .....            | 2                 | -      | -      | -      | 1      | -      | 1      | -      | -      | 1      | 2      | 9.1            | 8.7  |
| Engineering science(3) .....         | -                 | -      | 1      | -      | -      | 3      | -      | 3      | 3      | 6      | 2      | -              | 4.8  |
| Environmental health engin(40) ..... | 4                 | 5      | 1      | 6      | 2      | 2      | 1      | 5      | 9      | 10     | 9      | 5.6            | 14.1 |
| Industrial .....                     | 6                 | 6      | 6      | 16     | 6      | 14     | 13     | 19     | 18     | 25     | 17     | 9.1            | 10.4 |
| Materials science .....              | 11                | 13     | 22     | 17     | 23     | 18     | 36     | 25     | 35     | 31     | 56     | 9.7            | 15.5 |
| Mechanical .....                     | 5                 | 12     | 6      | 6      | 22     | 14     | 14     | 26     | 22     | 29     | 50     | 1.8            | 6.6  |
| Metallurgical(41) .....              | 5                 | 3      | 5      | 7      | 9      | 3      | 5      | 5      | 6      | 7      | 8      | 5.2            | 11.4 |
| Mining/mineral(42) .....             | -                 | 1      | 1      | -      | -      | 2      | 1      | 1      | 4      | 2      | 6      | -              | 15.8 |
| Naval arch/marine engin(1) .....     | -                 | -      | -      | -      | -      | -      | -      | -      | 1      | 1      | -      | -              | -    |
| Nuclear .....                        | 6                 | 7      | 5      | 6      | 3      | 6      | 2      | 4      | 7      | 9      | 4      | 4.6            | 3.7  |
| Ocean(3) .....                       | -                 | -      | -      | -      | -      | -      | 1      | -      | 2      | 2      | 1      | -              | 4.8  |
| Operations research .....            | 7                 | 5      | 5      | -      | 8      | 11     | 7      | 4      | 14     | 6      | 22     | 8.8            | 28.9 |
| Petroleum(43) .....                  | -                 | 2      | -      | -      | -      | 1      | -      | 2      | 1      | -      | 1      | -              | 3.6  |
| Polymer(3) .....                     | -                 | -      | 1      | 2      | 6      | 7      | 4      | 3      | 5      | 7      | 7      | -              | 16.7 |
| Systems(44) .....                    | 4                 | 2      | 3      | 1      | 4      | 2      | 3      | 7      | 3      | 3      | 4      | 5.9            | 8.3  |
| Engineering, general .....           | 1                 | 1      | 1      | -      | -      | 5      | 8      | 2      | 2      | 10     | 6      | 2.8            | 7.7  |
| Engineering, other .....             | 2                 | 1      | 4      | 8      | 3      | 9      | 6      | 11     | 6      | 18     | 19     | 2.7            | 13.7 |
| TOTAL, NON-S&E(45) .....             | 5,776             | 5,823  | 5,909  | 5,995  | 5,932  | 6,220  | 6,191  | 6,235  | 6,499  | 6,807  | 7,008  | 43.2           | 51.1 |
| TOTAL, ALL FIELDS .....              | 9,892             | 10,093 | 10,533 | 10,699 | 10,744 | 11,304 | 11,425 | 11,812 | 12,507 | 13,102 | 13,765 | 31.5           | 36.8 |

See footnotes at end of table.

## FOOTNOTES

[A hyphen (-) in a data column signifies that the subfield was not identified separately in the questionnaire for that year (e.g., the subfield "polymer physics" was introduced in 1983), or that this subfield was included in the questionnaire for that year but no doctorates were reported.]

- (1) This subfield was introduced in 1983 and deleted in 1991.
- (2) This subfield was changed from "nuclear structure" to "nuclear" in 1983.
- (3) This subfield was introduced in 1983.
- (4) This subfield was deleted in 1982.
- (5) This subfield was changed from "applied geology, geological engineering, and economic geology" to "applied geology" in 1983. "Applied geology" was deleted in 1991.
- (6) "Environmental sciences, general" and "environmental sciences, other" were replaced by "environmental sciences" in 1983.
- (7) "Structural geology" was discontinued in 1983, and "geology" was introduced.
- (8) This subfield was changed from "geophysics, solid earth" to "geophysics and seismology" in 1983.
- (9) "Marine sciences, other" was discontinued in 1983, and "marine sciences" was introduced.
- (10) This subfield had been deleted in 1976, but was restored in 1983.
- (11) "Earth science, general" and "earth science, other" were discontinued in 1983, and "geological sciences, general" and "geological sciences, other" were introduced.
- (12) This subfield was introduced in 1988.
- (13) This subfield was changed from "animal husbandry" to "animal breeding/genetics" in 1983.
- (14) "Animal science and animal nutrition" was separated into "animal nutrition" and "animal sciences, other" in 1983. In 1988 "dairy science" and "poultry science" were introduced.
- (15) "Fish and wildlife" was separated into two subfields in 1983. In 1988 "wildlife management" was discontinued, and "wildlife/range management" was introduced.
- (16) This subfield was changed from "food science and technology" to "food sciences" in 1983. In 1988 "food sciences" was separated into "food distribution," "food engineering," and "food sciences, other."
- (17) In 1988 "forestry science" was separated into "forestry biology," "forest engineering," "forest management," "wood science," "renewable natural resources," and "forestry and related sciences, other."
- (18) "Phytopathology" was discontinued in 1983, and subfields "plant breeding and genetics," "plant pathology," and "plant sciences, other" were introduced.
- (19) This subfield was introduced in 1988 and deleted in 1991.
- (20) This subfield was changed from "soils and soil science" to "soil sciences" in 1983. In 1988 "soil sciences" was separated into "soil chemistry/microbiology" and "soil sciences, other."
- (21) "Botany" was discontinued in 1983, and "botany, other" was introduced.

# FOOTNOTES (continued)

- (22) "Cytology" was discontinued in 1983, and "cell biology" was introduced.
- (23) This subfield was changed from "embryology" to "developmental biology/embryology" in 1990.
- (24) "Genetics" was separated into "plant genetics" and "human and animal genetics" in 1983.
- (25) "Pathology" was separated into "plant pathology" and "human and animal pathology" in 1983.
- (26) "Animal physiology" was discontinued in 1983, and "human and animal physiology" was introduced.
- (27) "Microbiology/bacteriology" was separated into two subfields in 1983.
- (28) This subfield was changed from "nutrition and dietetics" to "nutritional sciences" in 1983.
- (29) "Zoology" was discontinued in 1983, and "zoology, other" was introduced.
- (30) This subfield was introduced in 1980 as "criminology and criminal justice." In 1983 it was changed to "criminology."
- (31) The subfield "history and philosophy of science" was introduced in 1971. The name was changed to "history of science" in 1983.
- (32) "Political science" was discontinued in 1983, and "political science and government" was introduced.
- (33) This subfield was changed from "urban and regional planning" to "urban studies" in 1983.
- (34) This subfield was changed from "counseling and guidance" to "counseling" in 1983.
- (35) This subfield was changed from "developmental and gerontological" to "developmental" in 1983.
- (36) This subfield was changed from "industrial and personnel" to "industrial and organizational" in 1983.
- (37) "Aerospace" was added to "aeronautical/astronautical engineering" in 1983.
- (38) "Bioengineering" was added to "biomedical engineering" in 1983.
- (39) "Electrical" and "electronics" were merged in 1983.
- (40) This subfield was changed from "sanitary and environmental" to "environmental health" in 1983.
- (41) This subfield was changed from "metallurgy and physical metallurgical" to "metallurgical" in 1983.
- (42) This subfield was changed from "mining" to "mining and mineral" in 1983.
- (43) This subfield was changed from "fuel technology and petroleum engineering" to "petroleum" in 1983.
- (44) This subfield was changed from "systems design and systems science" to "systems" in 1983.
- (45) Non-S&E doctorates awarded include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|--------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |        |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                | Mech   |                        |
| U.S. CITIZENS                                           |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        |                        |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        |                        |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        |                        |
| 1981 .....                                              | 13,544       | 1,956             | 721           | 1,235          | 472                       | 482  | 168                  | 3,891            | 594         | 3,297       | 2,294      | 3,111 | 1,170          | 128  | 246  | 158            | 11,517 | 25,061                 |
| 1982 .....                                              | 13,292       | 1,991             | 706           | 1,285          | 528                       | 458  | 143                  | 3,964            | 647         | 3,317       | 2,163      | 2,876 | 1,169          | 136  | 241  | 198            | 11,099 | 24,391                 |
| 1983 .....                                              | 13,403       | 2,064             | 709           | 1,355          | 483                       | 411  | 180                  | 3,859            | 649         | 3,210       | 2,199      | 3,044 | 1,163          | 162  | 218  | 145            | 10,956 | 24,359                 |
| 1984 .....                                              | 13,250       | 2,071             | 739           | 1,332          | 474                       | 407  | 178                  | 3,910            | 625         | 3,285       | 2,036      | 2,935 | 1,239          | 167  | 255  | 163            | 10,777 | 24,027                 |
| 1985 .....                                              | 12,947       | 2,043             | 698           | 1,345          | 442                       | 376  | 189                  | 3,831            | 683         | 3,148       | 1,982      | 2,805 | 1,279          | 218  | 247  | 193            | 10,423 | 23,370                 |
| 1986 .....                                              | 12,869       | 2,014             | 694           | 1,320          | 422                       | 366  | 202                  | 3,703            | 579         | 3,124       | 2,013      | 2,766 | 1,383          | 219  | 291  | 209            | 10,212 | 23,081                 |
| 1987 .....                                              | 12,819       | 2,080             | 699           | 1,381          | 425                       | 345  | 243                  | 3,565            | 584         | 2,981       | 1,856      | 2,747 | 1,558          | 280  | 291  | 241            | 10,164 | 22,983                 |
| 1988 .....                                              | 13,217       | 2,100             | 723           | 1,377          | 511                       | 342  | 284                  | 3,670            | 539         | 3,131       | 1,862      | 2,667 | 1,781          | 335  | 359  | 256            | 10,071 | 23,288                 |
| 1989 .....                                              | 13,312       | 1,973             | 675           | 1,298          | 529                       | 393  | 338                  | 3,724            | 607         | 3,117       | 1,807      | 2,684 | 1,864          | 352  | 394  | 259            | 10,088 | 23,400                 |
| 1990 .....                                              | 14,010       | 2,149             | 751           | 1,398          | 535                       | 375  | 348                  | 3,822            | 630         | 3,192       | 1,919      | 2,909 | 1,953          | 307  | 438  | 299            | 10,876 | 24,886                 |
| 1991 .....                                              | 13,923       | 2,048             | 737           | 1,311          | 584                       | 439  | 379                  | 3,799            | 551         | 3,248       | 1,901      | 2,796 | 1,977          | 316  | 465  | 279            | 10,798 | 24,721                 |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        |                        |
| 1981 .....                                              | 26           | 1                 | -             | 1              | -                         | 1    | -                    | 7                | 1           | 6           | 4          | 9     | 4              | -    | -    | 2              | 59     | 85                     |
| 1982 .....                                              | 38           | 3                 | 3             | -              | -                         | 1    | 1                    | 10               | 3           | 7           | 4          | 16    | 3              | -    | -    | -              | 39     | 77                     |
| 1983 .....                                              | 27           | 6                 | 3             | 3              | 2                         | -    | 1                    | 5                | 1           | 4           | 4          | 9     | -              | -    | -    | -              | 54     | 81                     |
| 1984 .....                                              | 31           | 4                 | 1             | 3              | -                         | 3    | -                    | 11               | 1           | 10          | 4          | 6     | 3              | 2    | -    | -              | 43     | 74                     |
| 1985 .....                                              | 41           | 3                 | 1             | 2              | 1                         | -    | -                    | 17               | 4           | 13          | 9          | 10    | 1              | -    | 1    | -              | 55     | 96                     |
| 1986 .....                                              | 52           | 5                 | -             | 5              | 2                         | 1    | -                    | 17               | -           | 17          | 12         | 9     | 6              | -    | 2    | 2              | 47     | 99                     |
| 1987 .....                                              | 52           | 7                 | 1             | 6              | -                         | -    | 3                    | 13               | 2           | 11          | 6          | 16    | 7              | 1    | 3    | 1              | 63     | 115                    |
| 1988 .....                                              | 41           | 6                 | 1             | 5              | 2                         | 2    | 1                    | 12               | 6           | 6           | 7          | 7     | 4              | 2    | -    | 1              | 53     | 94                     |
| 1989 .....                                              | 52           | 10                | 5             | 5              | 6                         | -    | 2                    | 9                | 2           | 7           | 7          | 11    | 7              | 1    | -    | -              | 42     | 94                     |
| 1990 .....                                              | 41           | 3                 | -             | 3              | 1                         | 1    | -                    | 8                | 4           | 4           | 6          | 18    | 4              | -    | -    | -              | 55     | 96                     |
| 1991 .....                                              | 55           | 10                | 1             | 9              | 3                         | -    | 1                    | 14               | 4           | 10          | 8          | 13    | 6              | 1    | 2    | 1              | 73     | 128                    |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |        |                        |
| 1981 .....                                              | 330          | 46                | 20            | 26             | 4                         | 20   | 4                    | 98               | 8           | 90          | 48         | 33    | 77             | 3    | 20   | 13             | 135    | 465                    |
| 1982 .....                                              | 327          | 56                | 21            | 35             | 12                        | 11   | 2                    | 104              | 8           | 96          | 45         | 25    | 72             | 12   | 20   | 9              | 125    | 452                    |
| 1983 .....                                              | 345          | 66                | 27            | 39             | 8                         | 13   | 6                    | 116              | 15          | 101         | 35         | 35    | 66             | 11   | 10   | 9              | 147    | 492                    |
| 1984 .....                                              | 384          | 77                | 27            | 50             | 8                         | 9    | 12                   | 110              | 7           | 103         | 41         | 32    | 95             | 10   | 23   | 18             | 128    | 512                    |
| 1985 .....                                              | 373          | 76                | 19            | 57             | 8                         | 14   | 2                    | 114              | 8           | 106         | 35         | 34    | 90             | 20   | 13   | 21             | 143    | 516                    |
| 1986 .....                                              | 397          | 75                | 19            | 56             | 6                         | 14   | 12                   | 136              | 12          | 124         | 42         | 32    | 80             | 17   | 16   | 10             | 133    | 530                    |
| 1987 .....                                              | 443          | 67                | 18            | 49             | 9                         | 18   | 10                   | 123              | 17          | 106         | 43         | 38    | 135            | 20   | 37   | 25             | 99     | 542                    |
| 1988 .....                                              | 451          | 67                | 19            | 48             | 8                         | 17   | 20                   | 110              | 9           | 101         | 51         | 37    | 141            | 26   | 37   | 22             | 163    | 614                    |
| 1989 .....                                              | 487          | 75                | 33            | 42             | 11                        | 13   | 18                   | 127              | 7           | 120         | 32         | 38    | 173            | 34   | 45   | 25             | 139    | 626                    |
| 1990 .....                                              | 484          | 86                | 32            | 54             | 4                         | 11   | 10                   | 127              | 11          | 116         | 45         | 44    | 157            | 22   | 44   | 27             | 156    | 640                    |
| 1991 .....                                              | 577          | 81                | 22            | 59             | 7                         | 23   | 32                   | 162              | 8           | 154         | 44         | 43    | 185            | 25   | 59   | 26             | 185    | 762                    |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      | Non-<br>S&E(2) | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|---------------------------|------|----------------------|------------------|---------------|-------------|------------|-------|----------------|---------------|------|------|------|----------------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |               |             | Soc<br>sci | Psych | Engineering(1) |               |      |      |      |                |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr |                           |      |                      | Chem-<br>istry   | Sub-<br>total | Agri<br>sci |            |       | Biol<br>sci    | Sub-<br>total | Chem | Elec | Mech |                |                        |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      |                |                        |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      |                |                        |
| Black                                                   |              |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      |                |                        |
| 1981 .....                                              | 282          | 19                | 6             | 13                        | 3    | 7                    | 2                | 52            | 9           | 43         | 72    | 111            | 16            | 2    | 7    | 2    | 731            | 1,013                  |
| 1982 .....                                              | 285          | 21                | 11            | 10                        | 2    | 6                    | 1                | 48            | 5           | 43         | 86    | 112            | 9             | -    | 1    | 3    | 762            | 1,047                  |
| 1983 .....                                              | 283          | 19                | 8             | 11                        | 1    | 3                    | 3                | 49            | 12          | 37         | 79    | 110            | 19            | 1    | 2    | 4    | 639            | 922                    |
| 1984 .....                                              | 299          | 28                | 10            | 18                        | 2    | 3                    | 2                | 55            | 10          | 45         | 82    | 115            | 12            | 2    | 1    | 2    | 654            | 953                    |
| 1985 .....                                              | 278          | 23                | 4             | 19                        | 2    | 3                    | 2                | 49            | 5           | 44         | 79    | 101            | 19            | 2    | 6    | 1    | 634            | 912                    |
| 1986 .....                                              | 254          | 20                | 7             | 13                        | -    | 5                    | -                | 47            | 7           | 40         | 66    | 102            | 14            | 1    | 2    | 3    | 569            | 823                    |
| 1987 .....                                              | 234          | 16                | 5             | 11                        | 1    | 10                   | 2                | 52            | 7           | 45         | 53    | 88             | 12            | 3    | -    | 2    | 534            | 768                    |
| 1988 .....                                              | 260          | 28                | 11            | 17                        | 2    | 2                    | 1                | 44            | 8           | 36         | 65    | 99             | 19            | 4    | 6    | -    | 554            | 814                    |
| 1989 .....                                              | 284          | 25                | 5             | 20                        | 3    | 6                    | 1                | 51            | 6           | 45         | 78    | 96             | 24            | 1    | 8    | 5    | 537            | 821                    |
| 1990 .....                                              | 284          | 19                | 5             | 14                        | 3    | 4                    | 1                | 45            | 9           | 36         | 73    | 111            | 28            | 4    | 6    | 5    | 613            | 897                    |
| 1991 .....                                              | 328          | 24                | 6             | 18                        | 2    | 9                    | 5                | 50            | 6           | 44         | 82    | 113            | 43            | 4    | 14   | 3    | 605            | 933                    |
| Hispanic                                                |              |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      |                |                        |
| 1981 .....                                              | 198          | 26                | 6             | 20                        | 6    | 4                    | -                | 42            | 8           | 34         | 49    | 59             | 12            | 1    | 2    | 1    | 266            | 464                    |
| 1982 .....                                              | 226          | 21                | 6             | 15                        | 6    | 6                    | 1                | 50            | 6           | 44         | 50    | 69             | 23            | 4    | 6    | 1    | 309            | 535                    |
| 1983 .....                                              | 237          | 24                | 5             | 19                        | 9    | 4                    | -                | 41            | 2           | 39         | 57    | 84             | 18            | 4    | 3    | -    | 302            | 539                    |
| 1984 .....                                              | 254          | 38                | 12            | 26                        | 1    | 11                   | 3                | 43            | 4           | 39         | 55    | 81             | 22            | 2    | 6    | 4    | 282            | 536                    |
| 1985 .....                                              | 244          | 26                | 12            | 14                        | 4    | 7                    | 5                | 59            | 10          | 49         | 63    | 64             | 16            | 2    | 1    | 3    | 317            | 561                    |
| 1986 .....                                              | 276          | 35                | 11            | 24                        | 5    | 9                    | 4                | 59            | 7           | 52         | 58    | 81             | 25            | 4    | 7    | 3    | 295            | 571                    |
| 1987 .....                                              | 305          | 48                | 8             | 40                        | 3    | 9                    | 4                | 64            | 12          | 52         | 61    | 92             | 24            | 7    | 4    | 4    | 313            | 618                    |
| 1988 .....                                              | 327          | 57                | 14            | 43                        | 8    | 3                    | 2                | 74            | 13          | 61         | 51    | 89             | 43            | 3    | 9    | 5    | 270            | 597                    |
| 1989 .....                                              | 310          | 52                | 12            | 40                        | 6    | 8                    | 4                | 71            | 12          | 59         | 48    | 87             | 34            | 4    | 10   | 3    | 272            | 582                    |
| 1990 .....                                              | 383          | 63                | 13            | 50                        | 11   | 7                    | 4                | 86            | 14          | 72         | 75    | 98             | 39            | 6    | 7    | 3    | 335            | 718                    |
| 1991 .....                                              | 395          | 52                | 15            | 37                        | 12   | 6                    | 10               | 85            | 7           | 78         | 74    | 109            | 47            | 10   | 10   | 8    | 313            | 708                    |
| White                                                   |              |                   |               |                           |      |                      |                  |               |             |            |       |                |               |      |      |      |                |                        |
| 1981 .....                                              | 12,090       | 1,724             | 622           | 1,102                     | 443  | 429                  | 154              | 3,515         | 543         | 2,972      | 1,997 | 2,819          | 1,009         | 118  | 203  | 133  | 9,890          | 21,980                 |
| 1982 .....                                              | 12,034       | 1,827             | 636           | 1,191                     | 498  | 419                  | 134              | 3,632         | 611         | 3,021      | 1,902 | 2,607          | 1,015         | 113  | 201  | 177  | 9,646          | 21,680                 |
| 1983 .....                                              | 12,116       | 1,879             | 631           | 1,248                     | 443  | 374                  | 161              | 3,560         | 600         | 2,960      | 1,943 | 2,740          | 1,016         | 140  | 195  | 128  | 9,584          | 21,700                 |
| 1984 .....                                              | 11,921       | 1,854             | 665           | 1,189                     | 449  | 366                  | 155              | 3,590         | 593         | 2,997      | 1,793 | 2,652          | 1,062         | 143  | 214  | 135  | 9,429          | 21,350                 |
| 1985 .....                                              | 11,660       | 1,850             | 631           | 1,219                     | 415  | 337                  | 170              | 3,515         | 646         | 2,869      | 1,724 | 2,552          | 1,097         | 181  | 210  | 160  | 9,103          | 20,763                 |
| 1986 .....                                              | 11,616       | 1,817             | 635           | 1,182                     | 398  | 326                  | 176              | 3,383         | 543         | 2,840      | 1,778 | 2,509          | 1,229         | 195  | 260  | 181  | 9,012          | 20,628                 |
| 1987 .....                                              | 11,482       | 1,888             | 645           | 1,243                     | 395  | 295                  | 215              | 3,237         | 541         | 2,696      | 1,645 | 2,476          | 1,331         | 243  | 234  | 203  | 8,980          | 20,462                 |
| 1988 .....                                              | 11,876       | 1,881             | 646           | 1,235                     | 480  | 308                  | 253              | 3,371         | 493         | 2,878      | 1,649 | 2,404          | 1,530         | 293  | 296  | 225  | 8,906          | 20,782                 |
| 1989 .....                                              | 11,915       | 1,766             | 599           | 1,167                     | 495  | 351                  | 296              | 3,393         | 561         | 2,832      | 1,608 | 2,423          | 1,583         | 306  | 318  | 218  | 8,978          | 20,893                 |
| 1990 .....                                              | 12,556       | 1,920             | 671           | 1,249                     | 506  | 346                  | 325              | 3,493         | 582         | 2,911      | 1,691 | 2,589          | 1,686         | 270  | 372  | 261  | 9,600          | 22,156                 |
| 1991 .....                                              | 12,353       | 1,844             | 671           | 1,173                     | 546  | 394                  | 323              | 3,431         | 516         | 2,915      | 1,653 | 2,503          | 1,659         | 270  | 372  | 236  | 9,506          | 21,859                 |

See footnotes at end of table.

20

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      | Total<br>all<br>fields |                |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|------|------------------------|----------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      |      |                        | Non-<br>S&E(2) |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec | Mech |                        |                |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| 1981 .....                                              | 618          | 140               | 67            | 73             | 16                        | 21   | 8                    | 177              | 25          | 152         | 124        | 80    | 52             | 4    | 14   | 7    | 436                    | 1,054          |
| 1982 .....                                              | 382          | 63                | 29            | 34             | 10                        | 15   | 4                    | 120              | 14          | 106         | 76         | 47    | 47             | 7    | 13   | 8    | 218                    | 600            |
| 1983 .....                                              | 395          | 70                | 35            | 35             | 20                        | 17   | 9                    | 88               | 19          | 69          | 81         | 66    | 44             | 6    | 8    | 4    | 230                    | 625            |
| 1984 .....                                              | 361          | 70                | 24            | 46             | 14                        | 15   | 6                    | 101              | 10          | 91          | 61         | 49    | 45             | 8    | 11   | 4    | 241                    | 602            |
| 1985 .....                                              | 351          | 65                | 31            | 34             | 12                        | 15   | 10                   | 77               | 10          | 67          | 72         | 44    | 56             | 13   | 16   | 8    | 171                    | 522            |
| 1986 .....                                              | 274          | 62                | 22            | 40             | 11                        | 11   | 10                   | 61               | 10          | 51          | 57         | 33    | 29             | 2    | 4    | 10   | 156                    | 430            |
| 1987 .....                                              | 303          | 54                | 22            | 32             | 17                        | 13   | 9                    | 76               | 5           | 71          | 48         | 37    | 49             | 6    | 13   | 6    | 175                    | 478            |
| 1988 .....                                              | 262          | 61                | 32            | 29             | 11                        | 10   | 7                    | 59               | 10          | 49          | 39         | 31    | 44             | 7    | 11   | 3    | 125                    | 387            |
| 1989 .....                                              | 264          | 45                | 21            | 24             | 8                         | 15   | 17                   | 73               | 19          | 54          | 34         | 29    | 43             | 6    | 13   | 8    | 120                    | 384            |
| 1990 .....                                              | 262          | 58                | 30            | 28             | 10                        | 6    | 8                    | 63               | 10          | 53          | 29         | 49    | 39             | 5    | 9    | 3    | 117                    | 379            |
| 1991 .....                                              | 215          | 37                | 22            | 15             | 14                        | 7    | 8                    | 57               | 10          | 47          | 40         | 15    | 37             | 6    | 8    | 5    | 116                    | 331            |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|-------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |       |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                | Mech  |                        |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       |                        |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       |                        |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 10,046       | 1,732             | 676           | 1,056          | 425                       | 402  | 148                  | 2,859            | 506         | 2,353       | 1,617      | 1,746 | 1,117          | 120  | 238  | 154            | 6,314 | 16,360                 |
| 1982 .....                                              | 9,652        | 1,727             | 651           | 1,076          | 436                       | 386  | 126                  | 2,851            | 530         | 2,321       | 1,475      | 1,556 | 1,095          | 127  | 232  | 187            | 5,910 | 15,562                 |
| 1983 .....                                              | 9,457        | 1,779             | 658           | 1,121          | 402                       | 335  | 153                  | 2,688            | 549         | 2,139       | 1,444      | 1,576 | 1,080          | 149  | 212  | 139            | 5,663 | 15,120                 |
| 1984 .....                                              | 9,287        | 1,768             | 685           | 1,083          | 378                       | 333  | 153                  | 2,773            | 531         | 2,242       | 1,291      | 1,440 | 1,151          | 151  | 247  | 152            | 5,443 | 14,730                 |
| 1985 .....                                              | 9,018        | 1,720             | 636           | 1,084          | 354                       | 306  | 165                  | 2,679            | 563         | 2,116       | 1,238      | 1,396 | 1,160          | 194  | 232  | 178            | 5,205 | 14,223                 |
| 1986 .....                                              | 8,783        | 1,682             | 638           | 1,044          | 344                       | 297  | 165                  | 2,512            | 463         | 2,049       | 1,212      | 1,330 | 1,241          | 188  | 272  | 196            | 4,853 | 13,636                 |
| 1987 .....                                              | 8,718        | 1,719             | 634           | 1,085          | 342                       | 280  | 193                  | 2,372            | 468         | 1,904       | 1,144      | 1,259 | 1,409          | 239  | 278  | 231            | 4,857 | 13,575                 |
| 1988 .....                                              | 8,933        | 1,738             | 666           | 1,072          | 395                       | 283  | 245                  | 2,380            | 420         | 1,960       | 1,099      | 1,190 | 1,603          | 293  | 335  | 240            | 4,792 | 13,725                 |
| 1989 .....                                              | 8,751        | 1,572             | 616           | 956            | 414                       | 300  | 266                  | 2,378            | 451         | 1,927       | 1,060      | 1,146 | 1,615          | 295  | 371  | 240            | 4,646 | 13,397                 |
| 1990 .....                                              | 9,182        | 1,734             | 688           | 1,046          | 410                       | 293  | 268                  | 2,441            | 483         | 1,958       | 1,140      | 1,191 | 1,705          | 258  | 403  | 276            | 4,969 | 14,151                 |
| 1991 .....                                              | 8,970        | 1,648             | 666           | 982            | 441                       | 351  | 298                  | 2,414            | 427         | 1,987       | 1,064      | 1,044 | 1,710          | 270  | 433  | 246            | 4,915 | 13,885                 |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 20           | 1                 | -             | 1              | -                         | 1    | -                    | 6                | 1           | 5           | 4          | 4     | 4              | -    | -    | 2              | 36    | 56                     |
| 1982 .....                                              | 27           | 3                 | 3             | -              | -                         | 1    | 1                    | 6                | 2           | 4           | 3          | 10    | 3              | -    | -    | -              | 17    | 44                     |
| 1983 .....                                              | 22           | 6                 | 3             | 3              | 2                         | -    | 1                    | 4                | 1           | 3           | 2          | 7     | -              | -    | -    | -              | 28    | 50                     |
| 1984 .....                                              | 26           | 4                 | 1             | 3              | -                         | 3    | -                    | 8                | 1           | 7           | 3          | 5     | 3              | 2    | -    | -              | 28    | 54                     |
| 1985 .....                                              | 21           | 3                 | 1             | 2              | 1                         | -    | -                    | 8                | 4           | 4           | 3          | 5     | 1              | -    | 1    | -              | 19    | 40                     |
| 1986 .....                                              | 33           | 3                 | -             | 3              | 1                         | -    | -                    | 11               | -           | 11          | 9          | 4     | 5              | -    | 2    | 2              | 25    | 58                     |
| 1987 .....                                              | 31           | 5                 | 1             | 4              | -                         | -    | 2                    | 9                | 2           | 7           | 4          | 4     | 7              | 1    | 3    | 1              | 31    | 62                     |
| 1988 .....                                              | 28           | 5                 | -             | 5              | 1                         | 2    | 1                    | 8                | 4           | 4           | 4          | 3     | 4              | 2    | -    | 1              | 24    | 52                     |
| 1989 .....                                              | 33           | 10                | 5             | 5              | 4                         | -    | 1                    | 5                | 1           | 4           | 5          | 3     | 5              | 1    | -    | -              | 16    | 49                     |
| 1990 .....                                              | 24           | 3                 | -             | 3              | -                         | 1    | -                    | 7                | 4           | 3           | 3          | 6     | 4              | -    | -    | -              | 28    | 52                     |
| 1991 .....                                              | 36           | 8                 | 1             | 7              | 2                         | -    | 1                    | 10               | 4           | 6           | 6          | 5     | 4              | -    | 1    | 1              | 37    | 73                     |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 246          | 41                | 19            | 22             | 3                         | 14   | 3                    | 65               | 5           | 60          | 33         | 16    | 71             | 2    | 19   | 13             | 69    | 315                    |
| 1982 .....                                              | 223          | 37                | 15            | 22             | 7                         | 9    | 2                    | 61               | 6           | 55          | 32         | 6     | 69             | 12   | 19   | 9              | 58    | 281                    |
| 1983 .....                                              | 235          | 50                | 23            | 27             | 4                         | 12   | 3                    | 67               | 9           | 58          | 17         | 19    | 63             | 11   | 10   | 8              | 77    | 312                    |
| 1984 .....                                              | 269          | 57                | 23            | 34             | 6                         | 8    | 11                   | 67               | 6           | 61          | 25         | 16    | 79             | 7    | 19   | 17             | 69    | 338                    |
| 1985 .....                                              | 260          | 53                | 16            | 37             | 7                         | 12   | 2                    | 74               | 7           | 67          | 18         | 18    | 76             | 15   | 11   | 20             | 69    | 329                    |
| 1986 .....                                              | 282          | 55                | 16            | 39             | 5                         | 12   | 12                   | 82               | 10          | 72          | 27         | 15    | 74             | 15   | 15   | 10             | 65    | 347                    |
| 1987 .....                                              | 320          | 52                | 16            | 36             | 8                         | 14   | 6                    | 75               | 14          | 61          | 27         | 14    | 124            | 18   | 35   | 25             | 49    | 369                    |
| 1988 .....                                              | 335          | 52                | 18            | 34             | 6                         | 13   | 19                   | 69               | 5           | 64          | 31         | 13    | 132            | 24   | 34   | 22             | 79    | 414                    |
| 1989 .....                                              | 365          | 62                | 28            | 34             | 9                         | 12   | 14                   | 77               | 4           | 73          | 21         | 20    | 150            | 28   | 41   | 24             | 76    | 441                    |
| 1990 .....                                              | 357          | 67                | 26            | 41             | 3                         | 8    | 9                    | 86               | 9           | 77          | 28         | 19    | 137            | 15   | 41   | 25             | 69    | 426                    |
| 1991 .....                                              | 395          | 62                | 17            | 45             | 4                         | 18   | 25                   | 94               | 6           | 88          | 21         | 12    | 159            | 19   | 56   | 23             | 74    | 469                    |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |        |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|--------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech   |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |        |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |        |
| Black                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |        |
| 1981 .....                                              | 157          | 16                | 5             | 11             | 3                         | 6    | 1                    | 24               | 9           | 15          | 44         | 47    | 16             | 2    | 7    | 2              | 342                    | 499    |
| 1982 .....                                              | 159          | 16                | 10            | 6              | 2                         | 4    | 1                    | 24               | 4           | 20          | 54         | 49    | 9              | -    | 1    | 3              | 324                    | 483    |
| 1983 .....                                              | 150          | 17                | 8             | 9              | 1                         | 2    | 1                    | 27               | 11          | 16          | 49         | 35    | 18             | 1    | 2    | 3              | 263                    | 413    |
| 1984 .....                                              | 156          | 26                | 10            | 16             | 1                         | 2    | 1                    | 28               | 8           | 20          | 46         | 41    | 11             | 2    | 1    | 2              | 271                    | 427    |
| 1985 .....                                              | 152          | 18                | 3             | 15             | 2                         | 3    | 2                    | 28               | 4           | 24          | 44         | 39    | 16             | 1    | 6    | 1              | 227                    | 379    |
| 1986 .....                                              | 124          | 16                | 6             | 10             | -                         | 2    | -                    | 25               | 4           | 21          | 35         | 36    | 10             | -    | 2    | 2              | 199                    | 323    |
| 1987 .....                                              | 115          | 13                | 4             | 9              | -                         | 8    | 1                    | 27               | 4           | 23          | 25         | 30    | 11             | 3    | -    | 2              | 202                    | 317    |
| 1988 .....                                              | 143          | 21                | 10            | 11             | 2                         | 2    | 1                    | 22               | 4           | 18          | 35         | 45    | 15             | 3    | 4    | -              | 172                    | 315    |
| 1989 .....                                              | 142          | 18                | 5             | 13             | 2                         | 4    | -                    | 27               | 5           | 22          | 35         | 35    | 21             | -    | 8    | 5              | 185                    | 327    |
| 1990 .....                                              | 150          | 13                | 5             | 8              | 1                         | 3    | 1                    | 24               | 8           | 16          | 43         | 42    | 23             | 3    | 5    | 5              | 200                    | 350    |
| 1991 .....                                              | 171          | 20                | 6             | 14             | 1                         | 5    | 1                    | 25               | 5           | 20          | 46         | 38    | 35             | 3    | 12   | 2              | 214                    | 385    |
| Hispanic                                                |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |        |
| 1981 .....                                              | 140          | 22                | 6             | 16             | 6                         | 3    | -                    | 31               | 8           | 23          | 36         | 30    | 12             | 1    | 2    | 1              | 135                    | 275    |
| 1982 .....                                              | 160          | 15                | 4             | 11             | 4                         | 5    | 1                    | 33               | 5           | 28          | 38         | 42    | 22             | 4    | 6    | 1              | 184                    | 344    |
| 1983 .....                                              | 140          | 11                | 5             | 6              | 9                         | 2    | -                    | 22               | 2           | 20          | 40         | 41    | 15             | 3    | 3    | -              | 148                    | 288    |
| 1984 .....                                              | 173          | 30                | 11            | 19             | 1                         | 10   | 3                    | 30               | 4           | 26          | 40         | 41    | 18             | 1    | 6    | 4              | 141                    | 314    |
| 1985 .....                                              | 148          | 20                | 10            | 10             | 4                         | 5    | 3                    | 35               | 7           | 28          | 40         | 25    | 16             | 2    | 1    | 3              | 152                    | 300    |
| 1986 .....                                              | 177          | 27                | 9             | 18             | 4                         | 6    | 4                    | 33               | 4           | 29          | 38         | 43    | 22             | 2    | 6    | 3              | 125                    | 302    |
| 1987 .....                                              | 179          | 33                | 6             | 27             | 3                         | 7    | 4                    | 41               | 8           | 33          | 39         | 31    | 21             | 6    | 4    | 4              | 153                    | 332    |
| 1988 .....                                              | 199          | 44                | 12            | 32             | 4                         | 3    | 2                    | 51               | 12          | 39          | 21         | 37    | 37             | 3    | 8    | 4              | 124                    | 323    |
| 1989 .....                                              | 180          | 37                | 12            | 25             | 4                         | 4    | 1                    | 53               | 9           | 44          | 26         | 27    | 28             | 2    | 9    | 2              | 129                    | 309    |
| 1990 .....                                              | 232          | 41                | 11            | 30             | 7                         | 4    | 3                    | 55               | 11          | 44          | 44         | 45    | 33             | 6    | 7    | 2              | 146                    | 378    |
| 1991 .....                                              | 233          | 42                | 13            | 29             | 11                        | 3    | 9                    | 50               | 6           | 44          | 35         | 46    | 37             | 6    | 10   | 6              | 125                    | 358    |
| White                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |        |
| 1981 .....                                              | 8,980        | 1,524             | 585           | 939            | 397                       | 359  | 136                  | 2,599            | 460         | 2,139       | 1,402      | 1,597 | 966            | 112  | 197  | 129            | 5,479                  | 14,459 |
| 1982 .....                                              | 8,777        | 1,598             | 591           | 1,007          | 415                       | 355  | 117                  | 2,632            | 501         | 2,131       | 1,290      | 1,424 | 946            | 104  | 193  | 166            | 5,213                  | 13,990 |
| 1983 .....                                              | 8,592        | 1,628             | 585           | 1,043          | 372                       | 303  | 139                  | 2,499            | 512         | 1,987       | 1,274      | 1,434 | 943            | 130  | 190  | 124            | 5,018                  | 13,610 |
| 1984 .....                                              | 8,368        | 1,588             | 618           | 970            | 359                       | 297  | 132                  | 2,559            | 503         | 2,056       | 1,134      | 1,302 | 997            | 131  | 210  | 125            | 4,803                  | 13,171 |
| 1985 .....                                              | 8,163        | 1,568             | 578           | 990            | 331                       | 272  | 149                  | 2,477            | 534         | 1,943       | 1,082      | 1,284 | 1,000          | 165  | 199  | 146            | 4,647                  | 12,810 |
| 1986 .....                                              | 7,955        | 1,528             | 587           | 941            | 323                       | 266  | 139                  | 2,315            | 435         | 1,880       | 1,065      | 1,215 | 1,104          | 170  | 243  | 169            | 4,352                  | 12,307 |
| 1987 .....                                              | 7,830        | 1,567             | 585           | 982            | 314                       | 238  | 172                  | 2,163            | 437         | 1,726       | 1,018      | 1,159 | 1,199          | 205  | 223  | 193            | 4,338                  | 12,168 |
| 1988 .....                                              | 8,019        | 1,559             | 595           | 964            | 374                       | 253  | 215                  | 2,185            | 387         | 1,798       | 980        | 1,078 | 1,375          | 255  | 279  | 210            | 4,324                  | 12,343 |
| 1989 .....                                              | 7,820        | 1,402             | 545           | 857            | 387                       | 268  | 235                  | 2,161            | 416         | 1,745       | 947        | 1,049 | 1,371          | 258  | 300  | 201            | 4,169                  | 11,989 |
| 1990 .....                                              | 8,211        | 1,558             | 616           | 942            | 391                       | 272  | 248                  | 2,217            | 441         | 1,776       | 999        | 1,056 | 1,470          | 229  | 341  | 242            | 4,468                  | 12,679 |
| 1991 .....                                              | 7,965        | 1,482             | 608           | 874            | 411                       | 318  | 255                  | 2,196            | 398         | 1,798       | 925        | 935   | 1,443          | 236  | 347  | 209            | 4,399                  | 12,364 |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |
| 1981 .....                                              | 503          | 128               | 61            | 67             | 16                        | 19   | 8                    | 134              | 23          | 111         | 98         | 52    | 48             | 3    | 13   | 7              | 253                    |
| 1982 .....                                              | 306          | 58                | 28            | 30             | 8                         | 12   | 4                    | 95               | 12          | 83          | 58         | 25    | 46             | 7    | 13   | 8              | 114                    |
| 1983 .....                                              | 318          | 67                | 34            | 33             | 14                        | 16   | 9                    | 69               | 14          | 55          | 62         | 40    | 41             | 4    | 7    | 4              | 129                    |
| 1984 .....                                              | 295          | 63                | 22            | 41             | 11                        | 13   | 6                    | 81               | 9           | 72          | 43         | 35    | 43             | 8    | 11   | 4              | 131                    |
| 1985 .....                                              | 274          | 58                | 28            | 30             | 9                         | 14   | 9                    | 57               | 7           | 50          | 51         | 25    | 51             | 11   | 14   | 8              | 91                     |
| 1986 .....                                              | 212          | 53                | 20            | 33             | 11                        | 11   | 10                   | 46               | 10          | 36          | 38         | 17    | 26             | 1    | 4    | 10             | 87                     |
| 1987 .....                                              | 243          | 49                | 22            | 27             | 17                        | 13   | 8                    | 57               | 3           | 54          | 31         | 21    | 47             | 6    | 13   | 6              | 84                     |
| 1988 .....                                              | 209          | 57                | 31            | 26             | 8                         | 10   | 7                    | 45               | 8           | 37          | 28         | 14    | 40             | 6    | 10   | 3              | 69                     |
| 1989 .....                                              | 211          | 43                | 21            | 22             | 8                         | 12   | 15                   | 55               | 16          | 39          | 26         | 12    | 40             | 6    | 13   | 8              | 71                     |
| 1990 .....                                              | 208          | 52                | 30            | 22             | 8                         | 5    | 7                    | 52               | 10          | 42          | 23         | 23    | 38             | 5    | 9    | 2              | 58                     |
| 1991 .....                                              | 170          | 34                | 21            | 13             | 12                        | 7    | 7                    | 39               | 8           | 31          | 31         | 8     | 32             | 6    | 7    | 5              | 66                     |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|--------------|-------------|------------|-------|----------------|------|------|----------------|-------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |              |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |       |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agric<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                | Mech  |                        |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       |                        |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       |                        |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 3,498        | 224               | 45            | 179            | 47                        | 80   | 20                   | 1,032            | 88           | 944         | 677        | 1,365 | 53             | 8    | 8    | 4              | 5,203 | 8,701                  |
| 1982 .....                                              | 3,640        | 264               | 55            | 209            | 92                        | 72   | 17                   | 1,113            | 117          | 996         | 688        | 1,320 | 74             | 9    | 9    | 11             | 5,189 | 8,829                  |
| 1983 .....                                              | 3,946        | 285               | 51            | 234            | 81                        | 76   | 27                   | 1,171            | 100          | 1,071       | 755        | 1,468 | 83             | 13   | 6    | 6              | 5,293 | 9,239                  |
| 1984 .....                                              | 3,963        | 303               | 54            | 249            | 96                        | 74   | 25                   | 1,137            | 94           | 1,043       | 745        | 1,495 | 88             | 16   | 8    | 11             | 5,334 | 9,297                  |
| 1985 .....                                              | 3,929        | 323               | 62            | 261            | 88                        | 70   | 24                   | 1,152            | 120          | 1,032       | 744        | 1,409 | 119            | 24   | 15   | 15             | 5,218 | 9,147                  |
| 1986 .....                                              | 4,086        | 332               | 56            | 276            | 78                        | 69   | 37                   | 1,191            | 116          | 1,075       | 801        | 1,436 | 142            | 31   | 19   | 13             | 5,359 | 9,445                  |
| 1987 .....                                              | 4,101        | 361               | 65            | 296            | 83                        | 65   | 50                   | 1,193            | 116          | 1,077       | 712        | 1,488 | 149            | 41   | 13   | 10             | 5,307 | 9,408                  |
| 1988 .....                                              | 4,284        | 362               | 57            | 305            | 116                       | 59   | 39                   | 1,290            | 119          | 1,171       | 763        | 1,477 | 178            | 42   | 24   | 16             | 5,279 | 9,563                  |
| 1989 .....                                              | 4,561        | 401               | 59            | 342            | 115                       | 93   | 72                   | 1,346            | 156          | 1,190       | 747        | 1,538 | 249            | 57   | 23   | 19             | 5,442 | 10,003                 |
| 1990 .....                                              | 4,828        | 415               | 63            | 352            | 125                       | 82   | 80                   | 1,381            | 147          | 1,234       | 779        | 1,718 | 248            | 49   | 35   | 23             | 5,907 | 10,735                 |
| 1991 .....                                              | 4,953        | 400               | 71            | 329            | 143                       | 88   | 81                   | 1,385            | 124          | 1,261       | 837        | 1,752 | 267            | 46   | 32   | 33             | 5,883 | 10,836                 |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 6            | -                 | -             | -              | -                         | -    | -                    | 1                | -            | 1           | -          | 5     | -              | -    | -    | -              | 23    | 29                     |
| 1982 .....                                              | 11           | -                 | -             | -              | -                         | -    | -                    | 4                | 1            | 3           | 1          | 6     | -              | -    | -    | -              | 22    | 33                     |
| 1983 .....                                              | 5            | -                 | -             | -              | -                         | -    | -                    | 1                | -            | 1           | 2          | 2     | -              | -    | -    | -              | 26    | 31                     |
| 1984 .....                                              | 5            | -                 | -             | -              | -                         | -    | -                    | 3                | -            | 3           | 1          | 1     | -              | -    | -    | -              | 15    | 20                     |
| 1985 .....                                              | 20           | -                 | -             | -              | -                         | -    | -                    | 9                | -            | 9           | 6          | 5     | -              | -    | -    | -              | 36    | 56                     |
| 1986 .....                                              | 19           | 2                 | -             | 2              | 1                         | 1    | -                    | 6                | -            | 6           | 3          | 5     | 1              | -    | -    | -              | 22    | 41                     |
| 1987 .....                                              | 21           | 2                 | -             | 2              | -                         | -    | 1                    | 4                | -            | 4           | 2          | 12    | -              | -    | -    | -              | 32    | 53                     |
| 1988 .....                                              | 13           | 1                 | 1             | -              | 1                         | -    | -                    | 4                | 2            | 2           | 3          | 4     | -              | -    | -    | -              | 29    | 42                     |
| 1989 .....                                              | 19           | -                 | -             | -              | 2                         | -    | 1                    | 4                | 1            | 3           | 2          | 8     | 2              | -    | -    | -              | 26    | 45                     |
| 1990 .....                                              | 17           | -                 | -             | -              | 1                         | -    | -                    | 1                | -            | 1           | 3          | 12    | -              | -    | -    | -              | 27    | 44                     |
| 1991 .....                                              | 19           | 2                 | -             | 2              | 1                         | -    | -                    | 4                | -            | 4           | 2          | 8     | 2              | 1    | 1    | -              | 36    | 55                     |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |       |                        |
| 1981 .....                                              | 84           | 3                 | 1             | 4              | 1                         | 6    | 1                    | 33               | 3            | 30          | 15         | 17    | 6              | 1    | 1    | -              | 66    | 150                    |
| 1982 .....                                              | 104          | 19                | 6             | 13             | 5                         | 2    | -                    | 43               | 2            | 41          | 13         | 19    | 3              | -    | 1    | -              | 67    | 171                    |
| 1983 .....                                              | 110          | 16                | 4             | 12             | 4                         | 1    | 3                    | 49               | 6            | 43          | 18         | 16    | 3              | -    | -    | 1              | 70    | 180                    |
| 1984 .....                                              | 115          | 20                | 4             | 16             | 2                         | 1    | 1                    | 43               | 1            | 42          | 16         | 16    | 16             | 3    | 4    | 1              | 59    | 174                    |
| 1985 .....                                              | 113          | 23                | 3             | 20             | 1                         | 2    | -                    | 40               | 1            | 39          | 17         | 16    | 14             | 5    | 2    | 1              | 74    | 187                    |
| 1986 .....                                              | 115          | 20                | 3             | 17             | 1                         | 2    | -                    | 54               | 2            | 52          | 15         | 17    | 6              | 2    | 1    | -              | 68    | 183                    |
| 1987 .....                                              | 123          | 15                | 2             | 13             | 1                         | 4    | 4                    | 48               | 3            | 45          | 16         | 24    | 11             | 2    | 2    | -              | 50    | 173                    |
| 1988 .....                                              | 116          | 15                | 1             | 14             | 2                         | 4    | 1                    | 41               | 4            | 37          | 20         | 24    | 9              | 2    | 3    | -              | 84    | 200                    |
| 1989 .....                                              | 122          | 13                | 5             | 8              | 2                         | 1    | 4                    | 50               | 3            | 47          | 11         | 18    | 23             | 6    | 4    | 1              | 63    | 185                    |
| 1990 .....                                              | 127          | 19                | 6             | 13             | 1                         | 3    | 1                    | 41               | 2            | 39          | 17         | 25    | 20             | 7    | 3    | 2              | 87    | 214                    |
| 1991 .....                                              | 182          | 19                | 5             | 14             | 3                         | 5    | 7                    | 68               | 2            | 66          | 23         | 31    | 26             | 6    | 3    | 3              | 111   | 293                    |

See footnotes at end of table.

25

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |       |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|-------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |       |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech  |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| Black                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | 125          | 3                 | 1             | 2              | -                         | 1    | 1                    | 28               | -           | 28          | 28         | 64    | -              | -    | -    | -              | 389                    | 514   |
| 1982 .....                                              | 126          | 5                 | 1             | 4              | -                         | 2    | -                    | 24               | 1           | 23          | 32         | 63    | -              | -    | -    | -              | 438                    | 564   |
| 1983 .....                                              | 133          | 2                 | -             | 2              | -                         | 1    | 2                    | 22               | 1           | 21          | 30         | 75    | 1              | -    | -    | 1              | 376                    | 509   |
| 1984 .....                                              | 143          | 2                 | -             | 2              | 1                         | 1    | 1                    | 27               | 2           | 25          | 36         | 74    | 1              | -    | -    | -              | 383                    | 526   |
| 1985 .....                                              | 126          | 5                 | 1             | 4              | -                         | -    | -                    | 21               | 1           | 20          | 35         | 62    | 3              | 1    | -    | -              | 407                    | 533   |
| 1986 .....                                              | 130          | 4                 | 1             | 3              | -                         | 3    | -                    | 22               | 3           | 19          | 31         | 66    | 4              | 1    | -    | 1              | 370                    | 500   |
| 1987 .....                                              | 119          | 3                 | 1             | 2              | 1                         | 2    | 1                    | 25               | 3           | 22          | 28         | 58    | 1              | -    | -    | -              | 332                    | 451   |
| 1988 .....                                              | 117          | 7                 | 1             | 6              | -                         | -    | -                    | 22               | 4           | 18          | 30         | 54    | 4              | 1    | 2    | -              | 382                    | 499   |
| 1989 .....                                              | 142          | 7                 | -             | 7              | 1                         | 2    | 1                    | 24               | 1           | 23          | 43         | 61    | 3              | 1    | -    | -              | 352                    | 494   |
| 1990 .....                                              | 134          | 6                 | -             | 6              | 2                         | 1    | -                    | 21               | 1           | 20          | 30         | 69    | 5              | 1    | 1    | -              | 413                    | 547   |
| 1991 .....                                              | 157          | 4                 | -             | 4              | 1                         | 4    | 4                    | 25               | 1           | 24          | 36         | 75    | 8              | 1    | 2    | 1              | 391                    | 548   |
| Hispanic                                                |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | 58           | 4                 | -             | 4              | -                         | 1    | -                    | 11               | -           | 11          | 13         | 29    | -              | -    | -    | -              | 131                    | 189   |
| 1982 .....                                              | 66           | 6                 | 2             | 4              | 2                         | 1    | -                    | 17               | 1           | 16          | 12         | 27    | 1              | -    | -    | -              | 125                    | 191   |
| 1983 .....                                              | 97           | 13                | -             | 13             | -                         | 2    | -                    | 19               | -           | 19          | 17         | 43    | 3              | 1    | -    | -              | 154                    | 251   |
| 1984 .....                                              | 81           | 8                 | 1             | 7              | -                         | 1    | -                    | 13               | -           | 13          | 15         | 40    | 4              | 1    | -    | -              | 141                    | 222   |
| 1985 .....                                              | 96           | 6                 | 2             | 4              | -                         | 2    | 2                    | 24               | 3           | 21          | 23         | 39    | -              | -    | -    | -              | 165                    | 261   |
| 1986 .....                                              | 99           | 8                 | 2             | 6              | 1                         | 3    | -                    | 26               | 3           | 23          | 20         | 38    | 3              | 2    | 1    | -              | 170                    | 269   |
| 1987 .....                                              | 126          | 15                | 2             | 13             | -                         | 2    | -                    | 23               | 4           | 19          | 22         | 61    | 3              | 1    | -    | -              | 160                    | 286   |
| 1988 .....                                              | 128          | 13                | 2             | 11             | 4                         | -    | -                    | 23               | 1           | 22          | 30         | 52    | 6              | -    | 1    | 1              | 146                    | 274   |
| 1989 .....                                              | 130          | 15                | -             | 15             | 2                         | 4    | 3                    | 18               | 3           | 15          | 22         | 60    | 6              | 2    | 1    | 1              | 143                    | 273   |
| 1990 .....                                              | 151          | 22                | 2             | 20             | 4                         | 3    | 1                    | 31               | 3           | 28          | 31         | 53    | 6              | -    | -    | 1              | 189                    | 340   |
| 1991 .....                                              | 162          | 10                | 2             | 8              | 1                         | 3    | 1                    | 35               | 1           | 34          | 39         | 63    | 10             | 4    | -    | 2              | 188                    | 350   |
| White                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | 3,110        | 200               | 37            | 163            | 46                        | 70   | 18                   | 916              | 83          | 833         | 595        | 1,222 | 43             | 6    | 6    | 4              | 4,411                  | 7,521 |
| 1982 .....                                              | 3,257        | 229               | 45            | 184            | 83                        | 64   | 17                   | 1,000            | 110         | 890         | 612        | 1,183 | 69             | 9    | 8    | 11             | 4,433                  | 7,690 |
| 1983 .....                                              | 3,524        | 251               | 46            | 205            | 71                        | 71   | 22                   | 1,061            | 88          | 973         | 669        | 1,306 | 73             | 10   | 5    | 4              | 4,566                  | 8,090 |
| 1984 .....                                              | 3,553        | 266               | 47            | 219            | 90                        | 69   | 23                   | 1,031            | 90          | 941         | 659        | 1,350 | 65             | 12   | 4    | 10             | 4,626                  | 8,179 |
| 1985 .....                                              | 3,497        | 282               | 53            | 229            | 84                        | 65   | 21                   | 1,038            | 112         | 926         | 642        | 1,268 | 97             | 16   | 11   | 14             | 4,456                  | 7,953 |
| 1986 .....                                              | 3,661        | 289               | 48            | 241            | 75                        | 60   | 37                   | 1,068            | 108         | 960         | 713        | 1,294 | 125            | 25   | 17   | 12             | 4,660                  | 8,321 |
| 1987 .....                                              | 3,652        | 321               | 60            | 261            | 81                        | 57   | 43                   | 1,074            | 104         | 970         | 627        | 1,317 | 132            | 38   | 11   | 10             | 4,642                  | 8,294 |
| 1988 .....                                              | 3,857        | 322               | 51            | 271            | 106                       | 55   | 38                   | 1,186            | 106         | 1,080       | 669        | 1,326 | 155            | 38   | 17   | 15             | 4,582                  | 8,439 |
| 1989 .....                                              | 4,095        | 364               | 54            | 310            | 108                       | 83   | 61                   | 1,232            | 145         | 1,087       | 661        | 1,374 | 212            | 48   | 18   | 17             | 4,809                  | 8,904 |
| 1990 .....                                              | 4,345        | 362               | 55            | 307            | 115                       | 74   | 77                   | 1,276            | 141         | 1,135       | 692        | 1,533 | 216            | 41   | 31   | 19             | 5,132                  | 9,477 |
| 1991 .....                                              | 4,388        | 362               | 63            | 299            | 135                       | 76   | 68                   | 1,235            | 118         | 1,117       | 728        | 1,568 | 216            | 34   | 25   | 27             | 5,107                  | 9,495 |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91—continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
|                                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| U.S. CITIZENS (con't.)                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 115          | 12                | 6             | 6              | -                         | 2    | -                    | 43               | 2           | 41          | 26         | 28    | 4              | 1    | 1    | -              | 183                    | 298  |
| 1982 .....                                              | 76           | 5                 | 1             | 4              | 2                         | 3    | -                    | 25               | 2           | 23          | 18         | 22    | 1              | -    | -    | -              | 104                    | 180  |
| 1983 .....                                              | 77           | 3                 | 1             | 2              | 6                         | 1    | -                    | 19               | 5           | 14          | 19         | 26    | 3              | 2    | 1    | -              | 101                    | 178  |
| 1984 .....                                              | 66           | 7                 | 2             | 5              | 3                         | 2    | -                    | 20               | 1           | 19          | 18         | 14    | 2              | -    | -    | -              | 110                    | 176  |
| 1985 .....                                              | 77           | 7                 | 3             | 4              | 3                         | 1    | 1                    | 20               | 3           | 17          | 21         | 19    | 5              | 2    | 2    | -              | 80                     | 157  |
| 1986 .....                                              | 62           | 9                 | 2             | 7              | -                         | -    | -                    | 15               | -           | 15          | 19         | 16    | 3              | 1    | -    | -              | 69                     | 131  |
| 1987 .....                                              | 60           | 5                 | -             | 5              | -                         | 1    | 1                    | 19               | 2           | 17          | 17         | 16    | 2              | -    | -    | -              | 91                     | 151  |
| 1988 .....                                              | 53           | 4                 | 1             | 3              | 3                         | -    | -                    | 14               | 2           | 12          | 11         | 17    | 4              | 1    | 1    | -              | 56                     | 109  |
| 1989 .....                                              | 53           | 2                 | -             | 2              | -                         | 3    | 2                    | 18               | 3           | 15          | 8          | 17    | 3              | -    | -    | -              | 49                     | 102  |
| 1990 .....                                              | 54           | 6                 | -             | 6              | 2                         | 1    | 1                    | 11               | -           | 11          | 6          | 26    | 1              | -    | -    | 1              | 59                     | 113  |
| 1991 .....                                              | 45           | 3                 | 1             | 2              | 2                         | -    | 1                    | 18               | 2           | 16          | 9          | 7     | 5              | -    | 1    | -              | 50                     | 95   |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      | Total<br>all<br>fields |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------|------------------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |      |                        |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                | Mech |                        |
| NON-U.S. CITIZENS, PERMANENT VISAS                      |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      |                        |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      |                        |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      |                        |
| 1981 .....                                              | 893          | 147               | 53            | 94             | 16                        | 43   | 20                   | 159              | 35          | 124         | 160        | 47    | 301            | 43   | 58   | 44             | 388  | 1,281                  |
| 1982 .....                                              | 854          | 119               | 35            | 84             | 29                        | 41   | 12                   | 140              | 23          | 117         | 170        | 47    | 296            | 37   | 62   | 65             | 374  | 1,228                  |
| 1983 .....                                              | 898          | 120               | 51            | 69             | 30                        | 46   | 27                   | 150              | 36          | 114         | 142        | 64    | 319            | 38   | 69   | 47             | 377  | 1,275                  |
| 1984 .....                                              | 835          | 119               | 36            | 83             | 25                        | 36   | 17                   | 149              | 35          | 114         | 164        | 51    | 274            | 32   | 59   | 39             | 389  | 1,224                  |
| 1985 .....                                              | 929          | 135               | 48            | 87             | 32                        | 42   | 24                   | 151              | 43          | 108         | 171        | 59    | 315            | 39   | 65   | 58             | 395  | 1,324                  |
| 1986 .....                                              | 987          | 133               | 40            | 93             | 24                        | 36   | 47                   | 165              | 48          | 117         | 174        | 65    | 343            | 51   | 70   | 58             | 445  | 1,432                  |
| 1987 .....                                              | 1,086        | 147               | 56            | 91             | 25                        | 51   | 32                   | 208              | 48          | 160         | 209        | 59    | 355            | 48   | 60   | 67             | 492  | 1,578                  |
| 1988 .....                                              | 1,128        | 136               | 62            | 74             | 31                        | 44   | 42                   | 263              | 71          | 192         | 185        | 61    | 366            | 44   | 90   | 71             | 495  | 1,623                  |
| 1989 .....                                              | 1,121        | 146               | 61            | 85             | 30                        | 35   | 58                   | 227              | 45          | 182         | 206        | 54    | 365            | 55   | 84   | 66             | 505  | 1,626                  |
| 1990 .....                                              | 1,186        | 167               | 69            | 98             | 23                        | 47   | 55                   | 246              | 57          | 189         | 188        | 73    | 387            | 42   | 89   | 68             | 509  | 1,695                  |
| 1991 .....                                              | 1,252        | 178               | 69            | 109            | 26                        | 55   | 62                   | 263              | 56          | 207         | 227        | 60    | 381            | 44   | 113  | 59             | 562  | 1,814                  |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      |                        |
| 1981 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1982 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1983 .....                                              | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | 1              | -    | -    | -              | -    | 1                      |
| 1984 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1985 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1986 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1987 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1988 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1989 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1990 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -    | -                      |
| 1991 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | 2    | 2                      |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      |                        |
| 1981 .....                                              | 491          | 103               | 36            | 67             | 10                        | 20   | 12                   | 83               | 17          | 66          | 47         | 8     | 208            | 39   | 38   | 30             | 117  | 608                    |
| 1982 .....                                              | 438          | 75                | 22            | 53             | 15                        | 21   | 10                   | 78               | 15          | 63          | 59         | 6     | 174            | 25   | 36   | 32             | 114  | 552                    |
| 1983 .....                                              | 433          | 70                | 26            | 44             | 18                        | 21   | 14                   | 81               | 18          | 63          | 39         | 9     | 181            | 21   | 48   | 25             | 118  | 551                    |
| 1984 .....                                              | 390          | 67                | 20            | 47             | 11                        | 21   | 8                    | 68               | 13          | 55          | 49         | 11    | 155            | 24   | 36   | 19             | 117  | 507                    |
| 1985 .....                                              | 435          | 74                | 19            | 55             | 13                        | 19   | 15                   | 61               | 16          | 45          | 52         | 10    | 191            | 28   | 33   | 37             | 118  | 553                    |
| 1986 .....                                              | 410          | 71                | 18            | 53             | 8                         | 14   | 25                   | 53               | 10          | 43          | 48         | 9     | 182            | 37   | 45   | 21             | 118  | 528                    |
| 1987 .....                                              | 478          | 76                | 17            | 59             | 9                         | 23   | 16                   | 85               | 21          | 64          | 68         | 9     | 192            | 29   | 30   | 36             | 147  | 625                    |
| 1988 .....                                              | 461          | 70                | 33            | 37             | 7                         | 16   | 24                   | 91               | 21          | 70          | 52         | 10    | 191            | 32   | 46   | 35             | 160  | 621                    |
| 1989 .....                                              | 492          | 80                | 26            | 54             | 12                        | 11   | 34                   | 95               | 16          | 79          | 56         | 17    | 187            | 33   | 39   | 41             | 143  | 635                    |
| 1990 .....                                              | 515          | 76                | 31            | 45             | 13                        | 16   | 38                   | 105              | 21          | 84          | 58         | 9     | 200            | 24   | 49   | 41             | 147  | 662                    |
| 1991 .....                                              | 574          | 86                | 27            | 59             | 10                        | 34   | 33                   | 116              | 15          | 101         | 66         | 13    | 216            | 18   | 65   | 34             | 155  | 729                    |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|--------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |              |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agric<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| Black                                                   |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 50           | 5                 | -             | 5              | 1                         | 2    | -                    | 9                | 2            | 7           | 28         | 2     | 3              | -    | -    | -              | 47                     | 97   |
| 1982 .....                                              | 51           | 5                 | -             | 5              | 1                         | -    | -                    | 8                | 2            | 6           | 23         | 3     | 11             | 1    | 3    | -              | 45                     | 96   |
| 1983 .....                                              | 39           | 6                 | 1             | 5              | -                         | -    | -                    | 9                | -            | 9           | 12         | 2     | 10             | 2    | -    | 1              | 44                     | 83   |
| 1984 .....                                              | 58           | 6                 | 1             | 5              | 1                         | 1    | 1                    | 13               | 8            | 5           | 27         | 6     | 3              | -    | 2    | -              | 44                     | 102  |
| 1985 .....                                              | 79           | 4                 | -             | 4              | 2                         | 4    | 1                    | 20               | 11           | 9           | 29         | 4     | 15             | 2    | 2    | 2              | 52                     | 131  |
| 1986 .....                                              | 64           | 5                 | 1             | 4              | 1                         | 1    | 1                    | 17               | 9            | 8           | 22         | 7     | 10             | 2    | 2    | -              | 62                     | 126  |
| 1987 .....                                              | 74           | 4                 | 2             | 2              | 1                         | 1    | -                    | 21               | 6            | 15          | 29         | 5     | 13             | -    | 3    | 1              | 65                     | 139  |
| 1988 .....                                              | 86           | 5                 | 1             | 4              | 1                         | 2    | 1                    | 24               | 12           | 12          | 37         | 4     | 12             | 2    | -    | 1              | 66                     | 152  |
| 1989 .....                                              | 68           | 6                 | -             | 6              | 1                         | 2    | -                    | 19               | 8            | 11          | 30         | 1     | 9              | 2    | 1    | -              | 73                     | 141  |
| 1990 .....                                              | 80           | 11                | 1             | 10             | -                         | -    | -                    | 20               | 6            | 14          | 33         | 4     | 12             | 3    | 1    | -              | 69                     | 149  |
| 1991 .....                                              | 92           | 7                 | 3             | 4              | 1                         | 2    | 3                    | 24               | 11           | 13          | 40         | 3     | 12             | 4    | -    | -              | 57                     | 149  |
| Hispanic                                                |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 40           | 4                 | 2             | 2              | -                         | 1    | -                    | 14               | 7            | 7           | 10         | 7     | 4              | -    | -    | 2              | 22                     | 62   |
| 1982 .....                                              | 43           | 4                 | 3             | 1              | 1                         | -    | -                    | 4                | 1            | 3           | 16         | 5     | 13             | 1    | 1    | 4              | 36                     | 79   |
| 1983 .....                                              | 45           | 2                 | -             | 2              | 2                         | 3    | -                    | 8                | 4            | 4           | 9          | 10    | 11             | 2    | 1    | 2              | 24                     | 69   |
| 1984 .....                                              | 41           | 9                 | 2             | 7              | 1                         | -    | -                    | 9                | 4            | 5           | 7          | 3     | 12             | 1    | 2    | 1              | 30                     | 71   |
| 1985 .....                                              | 46           | 4                 | 1             | 3              | 2                         | 5    | 1                    | 12               | 2            | 10          | 11         | 5     | 6              | -    | 3    | -              | 27                     | 73   |
| 1986 .....                                              | 66           | 5                 | 4             | 1              | -                         | 3    | 3                    | 24               | 10           | 14          | 13         | 8     | 10             | -    | 2    | 3              | 41                     | 107  |
| 1987 .....                                              | 49           | 8                 | 4             | 4              | 2                         | 2    | -                    | 13               | 3            | 10          | 11         | 3     | 10             | 4    | 1    | 1              | 42                     | 91   |
| 1988 .....                                              | 67           | 6                 | 1             | 5              | -                         | 1    | -                    | 23               | 8            | 15          | 13         | 4     | 20             | 2    | 4    | 2              | 32                     | 99   |
| 1989 .....                                              | 69           | 7                 | 4             | 3              | 3                         | 3    | -                    | 19               | 6            | 13          | 17         | 6     | 14             | 4    | 3    | -              | 43                     | 112  |
| 1990 .....                                              | 76           | 9                 | 2             | 7              | 2                         | 3    | 1                    | 25               | 9            | 16          | 12         | 9     | 15             | 1    | 3    | 2              | 41                     | 117  |
| 1991 .....                                              | 79           | 11                | 4             | 7              | 4                         | 3    | 1                    | 23               | 8            | 15          | 17         | 8     | 12             | 1    | 3    | 1              | 56                     | 135  |
| White                                                   |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 298          | 33                | 13            | 20             | 5                         | 19   | 8                    | 51               | 8            | 43          | 68         | 30    | 84             | 4    | 20   | 12             | 192                    | 490  |
| 1982 .....                                              | 296          | 32                | 9             | 23             | 12                        | 18   | 2                    | 46               | 5            | 41          | 70         | 31    | 85             | 10   | 17   | 25             | 167                    | 463  |
| 1983 .....                                              | 362          | 38                | 24            | 14             | 10                        | 21   | 13                   | 48               | 13           | 35          | 77         | 43    | 112            | 12   | 19   | 18             | 183                    | 545  |
| 1984 .....                                              | 325          | 34                | 12            | 22             | 12                        | 14   | 8                    | 56               | 9            | 47          | 75         | 31    | 95             | 7    | 17   | 19             | 189                    | 514  |
| 1985 .....                                              | 344          | 50                | 26            | 24             | 15                        | 13   | 7                    | 57               | 13           | 44          | 73         | 38    | 91             | 9    | 25   | 16             | 190                    | 534  |
| 1986 .....                                              | 398          | 41                | 15            | 26             | 15                        | 17   | 17                   | 62               | 14           | 48          | 83         | 38    | 125            | 10   | 20   | 29             | 198                    | 596  |
| 1987 .....                                              | 438          | 54                | 30            | 24             | 13                        | 24   | 14                   | 75               | 13           | 62          | 91         | 40    | 127            | 13   | 22   | 27             | 216                    | 654  |
| 1988 .....                                              | 450          | 46                | 24            | 22             | 20                        | 24   | 12                   | 113              | 25           | 88          | 70         | 41    | 124            | 6    | 37   | 28             | 224                    | 674  |
| 1989 .....                                              | 450          | 51                | 30            | 21             | 14                        | 18   | 23                   | 82               | 10           | 72          | 89         | 30    | 143            | 15   | 37   | 23             | 226                    | 676  |
| 1990 .....                                              | 474          | 66                | 32            | 34             | 8                         | 26   | 14                   | 85               | 19           | 66          | 76         | 49    | 150            | 14   | 34   | 25             | 232                    | 706  |
| 1991 .....                                              | 471          | 70                | 33            | 37             | 11                        | 16   | 25                   | 91               | 18           | 73          | 94         | 35    | 129            | 20   | 41   | 22             | 274                    | 745  |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| TOTAL, MALE AND FEMALE                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 14           | 2                 | 2             | -              | -                         | 1    | -                    | 2                | 1           | 1           | 7          | -     | 2              | -    | -    | -              | 10                     | 24   |
| 1982 .....                                              | 26           | 3                 | 1             | 2              | -                         | 2    | -                    | 4                | -           | 4           | 2          | 2     | 13             | -    | 5    | 4              | 12                     | 38   |
| 1983 .....                                              | 18           | 4                 | -             | 4              | -                         | 1    | -                    | 4                | 1           | 3           | 5          | -     | 4              | 1    | 1    | 1              | 8                      | 26   |
| 1984 .....                                              | 21           | 3                 | 1             | 2              | -                         | -    | -                    | 3                | 1           | 2           | 6          | -     | 9              | -    | 2    | -              | 9                      | 30   |
| 1985 .....                                              | 25           | 3                 | 2             | 1              | -                         | 1    | -                    | 1                | 1           | -           | 6          | 2     | 12             | -    | 2    | 3              | 8                      | 33   |
| 1986 .....                                              | 49           | 11                | 2             | 9              | -                         | 1    | 1                    | 9                | 5           | 4           | 8          | 3     | 16             | 2    | 1    | 5              | 26                     | 75   |
| 1987 .....                                              | 47           | 5                 | 3             | 2              | -                         | 1    | 2                    | 14               | 5           | 9           | 10         | 2     | 13             | 2    | 4    | 2              | 22                     | 69   |
| 1988 .....                                              | 64           | 9                 | 3             | 6              | 3                         | 1    | 5                    | 12               | 5           | 7           | 13         | 2     | 19             | 2    | 3    | 5              | 13                     | 77   |
| 1989 .....                                              | 42           | 2                 | 1             | 1              | -                         | 1    | 1                    | 12               | 5           | 7           | 14         | -     | 12             | 1    | 4    | 2              | 20                     | 62   |
| 1990 .....                                              | 41           | 5                 | 3             | 2              | -                         | 2    | 2                    | 11               | 2           | 9           | 9          | 2     | 10             | -    | 2    | -              | 20                     | 61   |
| 1991 .....                                              | 36           | 4                 | 2             | 2              | -                         | -    | -                    | 9                | 4           | 5           | 10         | 1     | 12             | 1    | 4    | 2              | 18                     | 54   |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |       |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|-------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |       |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech  |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | 721          | 119               | 45            | 74             | 15                        | 37   | 16                   | 104              | 31          | 73          | 123        | 21    | 286            | 42   | 56   | 44             | 252                    | 973   |
| 1982 .....                                              | 692          | 99                | 30            | 69             | 25                        | 33   | 12                   | 90               | 14          | 76          | 128        | 23    | 282            | 35   | 59   | 61             | 223                    | 915   |
| 1983 .....                                              | 716          | 99                | 45            | 54             | 23                        | 36   | 24                   | 94               | 31          | 63          | 100        | 29    | 311            | 36   | 68   | 47             | 237                    | 953   |
| 1984 .....                                              | 671          | 97                | 31            | 66             | 24                        | 24   | 15                   | 95               | 29          | 66          | 129        | 26    | 261            | 30   | 58   | 38             | 221                    | 892   |
| 1985 .....                                              | 744          | 112               | 42            | 70             | 28                        | 30   | 24                   | 99               | 37          | 62          | 124        | 29    | 298            | 37   | 64   | 55             | 255                    | 999   |
| 1986 .....                                              | 783          | 94                | 34            | 60             | 21                        | 32   | 41                   | 117              | 41          | 76          | 123        | 32    | 323            | 46   | 66   | 58             | 284                    | 1,067 |
| 1987 .....                                              | 828          | 110               | 50            | 60             | 18                        | 39   | 28                   | 131              | 38          | 93          | 154        | 18    | 330            | 40   | 59   | 66             | 289                    | 1,117 |
| 1988 .....                                              | 872          | 96                | 45            | 51             | 27                        | 33   | 35                   | 173              | 62          | 111         | 133        | 27    | 348            | 37   | 88   | 70             | 293                    | 1,165 |
| 1989 .....                                              | 848          | 111               | 49            | 62             | 24                        | 27   | 46                   | 133              | 37          | 96          | 140        | 28    | 339            | 47   | 79   | 66             | 291                    | 1,139 |
| 1990 .....                                              | 901          | 119               | 52            | 67             | 23                        | 36   | 45                   | 155              | 45          | 110         | 139        | 25    | 359            | 34   | 87   | 67             | 286                    | 1,187 |
| 1991 .....                                              | 905          | 136               | 59            | 77             | 17                        | 36   | 51                   | 155              | 47          | 108         | 145        | 20    | 345            | 36   | 110  | 56             | 291                    | 1,196 |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1982 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1983 .....                                              | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | 1              | -    | -    | -              | -                      | 1     |
| 1984 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1985 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1986 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1987 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1988 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1989 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1990 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| 1991 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -     |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |       |
| 1981 .....                                              | 408          | 84                | 32            | 52             | 9                         | 16   | 11                   | 51               | 15          | 36          | 36         | 4     | 197            | 38   | 36   | 30             | 91                     | 499   |
| 1982 .....                                              | 367          | 60                | 18            | 42             | 14                        | 16   | 10                   | 53               | 8           | 45          | 43         | 3     | 168            | 25   | 35   | 30             | 77                     | 444   |
| 1983 .....                                              | 354          | 58                | 25            | 33             | 14                        | 16   | 13                   | 45               | 15          | 30          | 26         | 4     | 178            | 21   | 47   | 25             | 77                     | 431   |
| 1984 .....                                              | 319          | 53                | 17            | 36             | 11                        | 12   | 7                    | 38               | 10          | 28          | 45         | 5     | 148            | 22   | 35   | 19             | 70                     | 389   |
| 1985 .....                                              | 360          | 56                | 14            | 42             | 13                        | 15   | 15                   | 39               | 12          | 27          | 33         | 5     | 184            | 27   | 32   | 37             | 77                     | 437   |
| 1986 .....                                              | 333          | 50                | 15            | 35             | 8                         | 11   | 22                   | 36               | 8           | 28          | 30         | 3     | 173            | 34   | 42   | 21             | 84                     | 417   |
| 1987 .....                                              | 371          | 55                | 14            | 41             | 7                         | 16   | 14                   | 49               | 17          | 32          | 47         | 2     | 181            | 26   | 29   | 36             | 84                     | 455   |
| 1988 .....                                              | 356          | 43                | 20            | 23             | 5                         | 9    | 19                   | 52               | 18          | 34          | 39         | 7     | 182            | 29   | 45   | 35             | 100                    | 456   |
| 1989 .....                                              | 374          | 57                | 18            | 39             | 10                        | 9    | 28                   | 50               | 13          | 37          | 36         | 8     | 176            | 31   | 36   | 41             | 85                     | 459   |
| 1990 .....                                              | 394          | 53                | 24            | 29             | 13                        | 12   | 32                   | 53               | 17          | 36          | 41         | 3     | 187            | 20   | 47   | 40             | 86                     | 480   |
| 1991 .....                                              | 393          | 58                | 20            | 38             | 7                         | 21   | 25                   | 51               | 10          | 41          | 34         | 2     | 195            | 16   | 63   | 34             | 86                     | 479   |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                | Total<br>all<br>fields |  |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|------|----------------|------------------------|--|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      |      | Non-<br>S&E(2) |                        |  |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec | Mech |                |                        |  |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                |                        |  |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                |                        |  |
| Black                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                |                        |  |
| 1981 .....                                              | 48           | 5                 | -             | 5              | 1                         | 2    | -                    | 9                | 2           | 7           | 26         | 2     | 3              | -    | -    | -    | 32             | 80                     |  |
| 1982 .....                                              | 47           | 5                 | -             | 5              | 1                         | -    | -                    | 6                | 2           | 4           | 22         | 2     | 11             | 1    | 3    | -    | 34             | 81                     |  |
| 1983 .....                                              | 38           | 6                 | 1             | 5              | -                         | -    | -                    | 8                | -           | 8           | 12         | 2     | 10             | 2    | -    | 1    | 35             | 73                     |  |
| 1984 .....                                              | 49           | 6                 | 1             | 5              | 1                         | 1    | 1                    | 11               | 7           | 4           | 22         | 4     | 3              | -    | 2    | -    | 32             | 81                     |  |
| 1985 .....                                              | 72           | 2                 | -             | 2              | 2                         | 4    | 1                    | 19               | 11          | 8           | 27         | 3     | 14             | 2    | 2    | 2    | 45             | 117                    |  |
| 1986 .....                                              | 56           | 5                 | 1             | 4              | 1                         | 1    | 1                    | 14               | 9           | 5           | 18         | 6     | 10             | 2    | 2    | -    | 50             | 106                    |  |
| 1987 .....                                              | 66           | 4                 | 2             | 2              | 1                         | 1    | -                    | 18               | 6           | 12          | 25         | 4     | 13             | -    | 3    | 1    | 52             | 118                    |  |
| 1988 .....                                              | 74           | 4                 | 1             | 3              | 1                         | 2    | 1                    | 18               | 11          | 7           | 35         | 1     | 12             | 2    | -    | 1    | 52             | 126                    |  |
| 1989 .....                                              | 65           | 6                 | -             | 6              | 1                         | 1    | -                    | 18               | 8           | 10          | 29         | 1     | 9              | 2    | 1    | -    | 60             | 125                    |  |
| 1990 .....                                              | 71           | 10                | 1             | 9              | -                         | -    | -                    | 19               | 6           | 13          | 30         | 1     | 11             | 3    | 1    | -    | 57             | 128                    |  |
| 1991 .....                                              | 78           | 6                 | 3             | 3              | 1                         | 2    | 3                    | 18               | 11          | 7           | 35         | 1     | 12             | 4    | -    | -    | 49             | 127                    |  |
| Hispanic                                                |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                |                        |  |
| 1981 .....                                              | 31           | 4                 | 2             | 2              | -                         | 1    | -                    | 12               | 7           | 5           | 6          | 4     | 4              | -    | -    | 2    | 16             | 47                     |  |
| 1982 .....                                              | 34           | 3                 | 2             | 1              | 1                         | -    | -                    | 2                | -           | 2           | 13         | 4     | 11             | -    | 1    | 4    | 18             | 52                     |  |
| 1983 .....                                              | 28           | 1                 | -             | 1              | 2                         | 3    | -                    | 5                | 3           | 2           | 5          | 2     | 10             | 2    | 1    | 2    | 17             | 45                     |  |
| 1984 .....                                              | 32           | 7                 | 2             | 5              | 1                         | -    | -                    | 7                | 4           | 3           | 6          | 1     | 10             | 1    | 2    | 1    | 15             | 47                     |  |
| 1985 .....                                              | 31           | 3                 | 1             | 2              | 1                         | 2    | 1                    | 9                | 1           | 8           | 6          | 3     | 6              | -    | 3    | -    | 19             | 50                     |  |
| 1986 .....                                              | 50           | 4                 | 3             | 1              | -                         | 3    | 3                    | 17               | 7           | 10          | 9          | 4     | 10             | -    | 2    | 3    | 21             | 71                     |  |
| 1987 .....                                              | 34           | 6                 | 4             | 2              | 1                         | 2    | -                    | 8                | 3           | 5           | 8          | 1     | 8              | 2    | 1    | 1    | 16             | 50                     |  |
| 1988 .....                                              | 47           | 3                 | -             | 3              | -                         | 1    | -                    | 17               | 7           | 10          | 4          | 2     | 20             | 2    | 4    | 2    | 18             | 65                     |  |
| 1989 .....                                              | 47           | 4                 | 3             | 1              | 2                         | 3    | -                    | 13               | 6           | 7           | 10         | 3     | 12             | 2    | 3    | -    | 22             | 69                     |  |
| 1990 .....                                              | 52           | 5                 | 2             | 3              | 2                         | 2    | 1                    | 17               | 6           | 11          | 8          | 5     | 12             | -    | 3    | 2    | 18             | 70                     |  |
| 1991 .....                                              | 64           | 10                | 4             | 6              | 3                         | 2    | 1                    | 18               | 6           | 12          | 13         | 5     | 12             | 1    | 3    | 1    | 25             | 89                     |  |
| White                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                |                        |  |
| 1981 .....                                              | 221          | 24                | 9             | 15             | 5                         | 17   | 5                    | 31               | 7           | 24          | 48         | 11    | 80             | 4    | 20   | 12   | 110            | 331                    |  |
| 1982 .....                                              | 224          | 28                | 9             | 19             | 9                         | 16   | 2                    | 26               | 4           | 22          | 49         | 14    | 80             | 9    | 16   | 23   | 85             | 309                    |  |
| 1983 .....                                              | 279          | 31                | 19            | 12             | 7                         | 16   | 11                   | 33               | 13          | 20          | 52         | 21    | 108            | 10   | 19   | 18   | 102            | 381                    |  |
| 1984 .....                                              | 251          | 28                | 10            | 18             | 11                        | 11   | 7                    | 36               | 7           | 29          | 51         | 16    | 91             | 7    | 17   | 18   | 99             | 350                    |  |
| 1985 .....                                              | 258          | 48                | 25            | 23             | 12                        | 8    | 7                    | 31               | 12          | 19          | 52         | 18    | 82             | 8    | 25   | 13   | 109            | 367                    |  |
| 1986 .....                                              | 301          | 24                | 13            | 11             | 12                        | 16   | 14                   | 43               | 12          | 31          | 59         | 19    | 114            | 8    | 19   | 29   | 109            | 410                    |  |
| 1987 .....                                              | 320          | 42                | 28            | 14             | 9                         | 20   | 12                   | 45               | 8           | 37          | 66         | 11    | 115            | 10   | 22   | 26   | 121            | 441                    |  |
| 1988 .....                                              | 338          | 38                | 21            | 17             | 18                        | 20   | 10                   | 75               | 21          | 54          | 45         | 16    | 116            | 2    | 36   | 27   | 113            | 451                    |  |
| 1989 .....                                              | 331          | 42                | 27            | 15             | 11                        | 13   | 17                   | 45               | 6           | 39          | 56         | 16    | 131            | 12   | 35   | 23   | 110            | 441                    |  |
| 1990 .....                                              | 356          | 49                | 23            | 26             | 8                         | 21   | 11                   | 59               | 14          | 45          | 52         | 16    | 140            | 11   | 34   | 25   | 114            | 470                    |  |
| 1991 .....                                              | 340          | 59                | 30            | 29             | 6                         | 11   | 22                   | 59               | 16          | 43          | 57         | 11    | 115            | 14   | 41   | 19   | 119            | 459                    |  |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      | Total<br>all<br>fields |                |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|------|------------------------|----------------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      |      |                        | Non-<br>S&E(2) |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec | Mech |                        |                |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| MALE                                                    |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |      |                        |                |
| 1981 .....                                              | 13           | 2                 | 2             | -              | -                         | 1    | -                    | 1                | -           | 1           | 7          | -     | 2              | -    | -    | -    | 3                      | 16             |
| 1982 .....                                              | 20           | 3                 | 1             | 2              | -                         | 1    | -                    | 3                | -           | 3           | 1          | -     | 12             | -    | 4    | 4    | 9                      | 29             |
| 1983 .....                                              | 16           | 3                 | -             | 3              | -                         | 1    | -                    | 3                | -           | 3           | 5          | -     | 4              | 1    | 1    | 1    | 6                      | 22             |
| 1984 .....                                              | 20           | 3                 | 1             | 2              | -                         | -    | -                    | 3                | 1           | 2           | 5          | -     | 9              | -    | 2    | -    | 5                      | 25             |
| 1985 .....                                              | 23           | 3                 | 2             | 1              | -                         | 1    | -                    | 1                | 1           | -           | 6          | -     | 12             | -    | 2    | 3    | 5                      | 28             |
| 1986 .....                                              | 43           | 11                | 2             | 9              | -                         | 1    | 1                    | 7                | 5           | 2           | 7          | -     | 16             | 2    | 1    | 5    | 20                     | 63             |
| 1987 .....                                              | 37           | 3                 | 2             | 1              | -                         | -    | 2                    | 11               | 4           | 7           | 8          | -     | 13             | 2    | 4    | 2    | 16                     | 53             |
| 1988 .....                                              | 57           | 8                 | 3             | 5              | 3                         | 1    | 5                    | 11               | 5           | 6           | 10         | 1     | 18             | 2    | 3    | 5    | 10                     | 67             |
| 1989 .....                                              | 31           | 2                 | 1             | 1              | -                         | 1    | 1                    | 7                | 4           | 3           | 9          | -     | 11             | -    | 4    | 2    | 14                     | 45             |
| 1990 .....                                              | 28           | 2                 | 2             | -              | -                         | 1    | 1                    | 7                | 2           | 5           | 8          | -     | 9              | -    | 2    | -    | 11                     | 39             |
| 1991 .....                                              | 30           | 3                 | 2             | 1              | -                         | -    | -                    | 9                | 4           | 5           | 6          | 1     | 11             | 1    | 3    | 2    | 12                     | 42             |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| Total                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 172          | 28                | 8             | 20             | 1                         | 6    | 4                    | 55               | 4           | 51          | 37         | 26    | 15             | 1    | 2    | -              | 136                    | 308  |
| 1982 .....                                              | 162          | 20                | 5             | 15             | 4                         | 8    | -                    | 50               | 9           | 41          | 42         | 24    | 14             | 2    | 3    | 4              | 151                    | 313  |
| 1983 .....                                              | 182          | 21                | 6             | 15             | 7                         | 10   | 3                    | 56               | 5           | 51          | 42         | 35    | 8              | 2    | 1    | -              | 140                    | 322  |
| 1984 .....                                              | 164          | 22                | 5             | 17             | 1                         | 12   | 2                    | 54               | 6           | 48          | 35         | 25    | 13             | 2    | 1    | 1              | 168                    | 332  |
| 1985 .....                                              | 185          | 23                | 6             | 17             | 4                         | 12   | -                    | 52               | 6           | 46          | 47         | 30    | 17             | 2    | 1    | 3              | 140                    | 325  |
| 1986 .....                                              | 204          | 39                | 6             | 33             | 3                         | 4    | 6                    | 48               | 7           | 41          | 51         | 33    | 20             | 5    | 4    | -              | 161                    | 365  |
| 1987 .....                                              | 258          | 37                | 6             | 31             | 7                         | 12   | 4                    | 77               | 10          | 67          | 55         | 41    | 25             | 8    | 1    | 1              | 203                    | 461  |
| 1988 .....                                              | 256          | 40                | 17            | 23             | 4                         | 11   | 7                    | 90               | 9           | 81          | 52         | 34    | 18             | 7    | 2    | 1              | 202                    | 458  |
| 1989 .....                                              | 273          | 35                | 12            | 23             | 6                         | 8    | 12                   | 94               | 8           | 86          | 66         | 26    | 26             | 8    | 5    | -              | 214                    | 487  |
| 1990 .....                                              | 285          | 48                | 17            | 31             | -                         | 11   | 10                   | 91               | 12          | 79          | 49         | 48    | 28             | 8    | 2    | 1              | 223                    | 508  |
| 1991 .....                                              | 347          | 42                | 10            | 32             | 9                         | 19   | 11                   | 108              | 9           | 99          | 82         | 40    | 36             | 8    | 3    | 3              | 271                    | 618  |
| Native American                                         |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1982 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1983 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1984 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1985 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1986 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1987 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1988 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1989 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1990 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | -                      | -    |
| 1991 .....                                              | -            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -              | 2                      | 2    |
| Asian                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 83           | 19                | 4             | 15             | 1                         | 4    | 1                    | 32               | 2           | 30          | 11         | 4     | 11             | 1    | 2    | -              | 26                     | 109  |
| 1982 .....                                              | 71           | 15                | 4             | 11             | 1                         | 5    | -                    | 25               | 7           | 18          | 16         | 3     | 6              | -    | 1    | 2              | 37                     | 108  |
| 1983 .....                                              | 79           | 12                | 1             | 11             | 4                         | 5    | 1                    | 36               | 3           | 33          | 13         | 5     | 3              | -    | 1    | -              | 41                     | 120  |
| 1984 .....                                              | 71           | 14                | 3             | 11             | -                         | 9    | 1                    | 30               | 3           | 27          | 4          | 6     | 7              | 2    | 1    | -              | 47                     | 118  |
| 1985 .....                                              | 75           | 18                | 5             | 13             | -                         | 4    | -                    | 22               | 4           | 18          | 19         | 5     | 7              | 1    | 1    | -              | 41                     | 116  |
| 1986 .....                                              | 77           | 21                | 3             | 18             | -                         | 3    | 3                    | 17               | 2           | 15          | 18         | 6     | 9              | 3    | 3    | -              | 34                     | 111  |
| 1987 .....                                              | 107          | 21                | 3             | 18             | 2                         | 7    | 2                    | 36               | 4           | 32          | 21         | 7     | 11             | 3    | 1    | -              | 63                     | 170  |
| 1988 .....                                              | 105          | 27                | 13            | 14             | 2                         | 7    | 5                    | 39               | 3           | 36          | 13         | 3     | 9              | 3    | 1    | -              | 60                     | 165  |
| 1989 .....                                              | 118          | 23                | 8             | 15             | 2                         | 2    | 6                    | 45               | 3           | 42          | 20         | 9     | 11             | 2    | 3    | -              | 58                     | 176  |
| 1990 .....                                              | 121          | 23                | 7             | 16             | -                         | 4    | 6                    | 52               | 4           | 48          | 17         | 6     | 13             | 4    | 2    | 1              | 61                     | 182  |
| 1991 .....                                              | 181          | 28                | 7             | 21             | 3                         | 13   | 8                    | 65               | 5           | 60          | 32         | 11    | 21             | 2    | 2    | -              | 69                     | 250  |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients: 1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| Black                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 2          | -     | -              | -    | -    | -              | 15                     | 17   |
| 1982 .....                                              | 4            | -                 | -             | -              | -                         | -    | -                    | 2                | -           | 2           | 1          | 1     | -              | -    | -    | -              | 11                     | 15   |
| 1983 .....                                              | 1            | -                 | -             | -              | -                         | -    | -                    | 1                | -           | 1           | -          | -     | -              | -    | -    | -              | 9                      | 10   |
| 1984 .....                                              | 9            | -                 | -             | -              | -                         | -    | -                    | 2                | 1           | 1           | 5          | 2     | -              | -    | -    | -              | 12                     | 21   |
| 1985 .....                                              | 7            | 2                 | -             | 2              | -                         | -    | -                    | 1                | -           | 1           | 2          | 1     | 1              | -    | -    | -              | 7                      | 14   |
| 1986 .....                                              | 8            | -                 | -             | -              | -                         | -    | -                    | 3                | -           | 3           | 4          | 1     | -              | -    | -    | -              | 12                     | 20   |
| 1987 .....                                              | 8            | -                 | -             | -              | -                         | -    | -                    | 3                | -           | 3           | 4          | 1     | -              | -    | -    | -              | 13                     | 21   |
| 1988 .....                                              | 12           | 1                 | -             | 1              | -                         | -    | -                    | 6                | 1           | 5           | 2          | 3     | -              | -    | -    | -              | 14                     | 26   |
| 1989 .....                                              | 3            | -                 | -             | -              | -                         | 1    | -                    | 1                | -           | 1           | 1          | -     | -              | -    | -    | -              | 13                     | 16   |
| 1990 .....                                              | 9            | 1                 | -             | 1              | -                         | -    | -                    | 1                | -           | 1           | 3          | 3     | 1              | -    | -    | -              | 12                     | 21   |
| 1991 .....                                              | 14           | 1                 | -             | 1              | -                         | -    | -                    | 6                | -           | 6           | 5          | 2     | -              | -    | -    | -              | 8                      | 22   |
| Hispanic                                                |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 9            | -                 | -             | -              | -                         | -    | -                    | 2                | -           | 2           | 4          | 3     | -              | -    | -    | -              | 6                      | 15   |
| 1982 .....                                              | 9            | 1                 | 1             | -              | -                         | -    | -                    | 2                | 1           | 1           | 3          | 1     | 2              | 1    | -    | -              | 18                     | 27   |
| 1983 .....                                              | 17           | 1                 | -             | 1              | -                         | -    | -                    | 3                | 1           | 2           | 4          | 8     | 1              | -    | -    | -              | 7                      | 24   |
| 1984 .....                                              | 9            | 2                 | -             | 2              | -                         | -    | -                    | 2                | -           | 2           | 1          | 2     | 2              | -    | -    | -              | 15                     | 24   |
| 1985 .....                                              | 15           | 1                 | -             | 1              | 1                         | 3    | -                    | 3                | 1           | 2           | 5          | 2     | -              | -    | -    | -              | 8                      | 23   |
| 1986 .....                                              | 16           | 1                 | 1             | -              | -                         | -    | -                    | 7                | 3           | 4           | 4          | 4     | -              | -    | -    | -              | 20                     | 36   |
| 1987 .....                                              | 15           | 2                 | -             | 2              | 1                         | -    | -                    | 5                | -           | 5           | 3          | 2     | 2              | 2    | -    | -              | 26                     | 41   |
| 1988 .....                                              | 20           | 3                 | 1             | 2              | -                         | -    | -                    | 6                | 1           | 5           | 9          | 2     | -              | -    | -    | -              | 14                     | 34   |
| 1989 .....                                              | 22           | 3                 | 1             | 2              | 1                         | -    | -                    | 6                | -           | 6           | 7          | 3     | 2              | 2    | -    | -              | 21                     | 43   |
| 1990 .....                                              | 24           | 4                 | -             | 4              | -                         | 1    | -                    | 8                | 3           | 5           | 4          | 4     | 3              | 1    | -    | -              | 23                     | 47   |
| 1991 .....                                              | 15           | 1                 | -             | 1              | 1                         | 1    | -                    | 5                | 2           | 3           | 4          | 3     | -              | -    | -    | -              | 31                     | 46   |
| White                                                   |              |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 77           | 9                 | 4             | 5              | -                         | 2    | 3                    | 20               | 1           | 19          | 20         | 19    | 4              | -    | -    | -              | 82                     | 159  |
| 1982 .....                                              | 72           | 4                 | -             | 4              | 3                         | 2    | -                    | 20               | 1           | 19          | 21         | 17    | 5              | 1    | 1    | 2              | 82                     | 154  |
| 1983 .....                                              | 83           | 7                 | 5             | 2              | 3                         | 5    | 2                    | 15               | -           | 15          | 25         | 22    | 4              | 2    | -    | -              | 81                     | 164  |
| 1984 .....                                              | 74           | 6                 | 2             | 4              | 1                         | 3    | 1                    | 20               | 2           | 18          | 24         | 15    | 4              | -    | -    | 1              | 90                     | 164  |
| 1985 .....                                              | 86           | 2                 | 1             | 1              | 3                         | 5    | -                    | 26               | 1           | 25          | 21         | 20    | 9              | 1    | -    | 3              | 81                     | 167  |
| 1986 .....                                              | 97           | 17                | 2             | 15             | 3                         | 1    | 3                    | 19               | 2           | 17          | 24         | 19    | 11             | 2    | 1    | -              | 89                     | 186  |
| 1987 .....                                              | 118          | 12                | 2             | 10             | 4                         | 4    | 2                    | 30               | 5           | 25          | 25         | 29    | 12             | 3    | -    | 1              | 95                     | 213  |
| 1988 .....                                              | 112          | 8                 | 3             | 5              | 2                         | 4    | 2                    | 38               | 4           | 34          | 25         | 25    | 8              | 4    | 1    | 1              | 111                    | 223  |
| 1989 .....                                              | 119          | 9                 | 3             | 6              | 3                         | 5    | 6                    | 37               | 4           | 33          | 33         | 14    | 12             | 3    | 2    | -              | 116                    | 235  |
| 1990 .....                                              | 118          | 17                | 9             | 8              | -                         | 5    | 3                    | 26               | 5           | 21          | 24         | 33    | 10             | 3    | -    | -              | 118                    | 236  |
| 1991 .....                                              | 131          | 11                | 3             | 8              | 5                         | 5    | 3                    | 32               | 2           | 30          | 37         | 24    | 14             | 6    | -    | 3              | 155                    | 288  |

See footnotes at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of recipients:  
1981-91--continued

| Citizenship status,<br>sex, race/ethnicity,<br>and year | Major field  |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                | Total<br>all<br>fields |      |
|---------------------------------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|--------------|-------------|------------|-------|----------------|------|------|----------------|------------------------|------|
|                                                         | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |              |             | Soc<br>sci | Psych | Engineering(1) |      |      | Non-<br>S&E(2) |                        |      |
|                                                         |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agric<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                        | Mech |
| NON-U.S. CITIZENS, PERMANENT VISAS (con't.)             |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| FEMALE                                                  |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| Unknown                                                 |              |                   |               |                |                           |      |                      |                  |              |             |            |       |                |      |      |                |                        |      |
| 1981 .....                                              | 1            | -                 | -             | -              | -                         | -    | -                    | 1                | 1            | -           | -          | -     | -              | -    | -    | -              | 7                      | 8    |
| 1982 .....                                              | 6            | -                 | -             | -              | -                         | 1    | -                    | 1                | -            | 1           | 1          | 2     | 1              | -    | 1    | -              | 3                      | 9    |
| 1983 .....                                              | 2            | 1                 | -             | 1              | -                         | -    | -                    | 1                | 1            | -           | -          | -     | -              | -    | -    | -              | 2                      | 4    |
| 1984 .....                                              | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -            | -           | 1          | -     | -              | -    | -    | -              | 4                      | 5    |
| 1985 .....                                              | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -            | -           | -          | 2     | -              | -    | -    | -              | 3                      | 5    |
| 1986 .....                                              | 6            | -                 | -             | -              | -                         | -    | -                    | 2                | -            | 2           | 1          | 3     | -              | -    | -    | -              | 6                      | 12   |
| 1987 .....                                              | 10           | 2                 | 1             | 1              | -                         | 1    | -                    | 3                | 1            | 2           | 2          | 2     | -              | -    | -    | -              | 6                      | 16   |
| 1988 .....                                              | 7            | 1                 | -             | 1              | -                         | -    | -                    | 1                | -            | 1           | 3          | 1     | 1              | -    | -    | -              | 3                      | 10   |
| 1989 .....                                              | 11           | -                 | -             | -              | -                         | -    | -                    | 5                | 1            | 4           | 5          | -     | 1              | 1    | -    | -              | 6                      | 17   |
| 1990 .....                                              | 13           | 3                 | 1             | 2              | -                         | 1    | 1                    | 4                | -            | 4           | 1          | 2     | 1              | -    | -    | -              | 9                      | 22   |
| 1991 .....                                              | 6            | 1                 | -             | 1              | -                         | -    | -                    | -                | -            | -           | 4          | -     | 1              | -    | 1    | -              | 6                      | 12   |

(1) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(2) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91

| Year              | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|-------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                   | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                   |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| TOTAL, S&E        |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....        | 17,996   | 17,399      | 13,544        | 3,855   | 893        | 2,962      | 100.0                   | 77.8          | 22.2    | 5.1        | 17.0       |
| 1982 .....        | 18,017   | 17,273      | 13,292        | 3,981   | 854        | 3,127      | 100.0                   | 77.0          | 23.0    | 4.9        | 18.1       |
| 1983 .....        | 18,393   | 17,701      | 13,403        | 4,298   | 898        | 3,400      | 100.0                   | 75.7          | 24.3    | 5.1        | 19.2       |
| 1984 .....        | 18,514   | 17,777      | 13,250        | 4,527   | 835        | 3,692      | 100.0                   | 74.5          | 25.5    | 4.7        | 20.8       |
| 1985 .....        | 18,712   | 17,904      | 12,947        | 4,957   | 929        | 4,028      | 100.0                   | 72.3          | 27.7    | 5.2        | 22.5       |
| 1986 .....        | 19,251   | 17,997      | 12,869        | 5,128   | 987        | 4,141      | 100.0                   | 71.5          | 28.5    | 5.5        | 23.0       |
| 1987 .....        | 19,706   | 18,355      | 12,819        | 5,536   | 1,086      | 4,450      | 100.0                   | 69.8          | 30.2    | 5.9        | 24.2       |
| 1988 .....        | 20,739   | 19,264      | 13,217        | 6,047   | 1,128      | 4,919      | 100.0                   | 68.6          | 31.4    | 5.9        | 25.5       |
| 1989 .....        | 21,530   | 19,811      | 13,312        | 6,499   | 1,121      | 5,378      | 100.0                   | 67.2          | 32.8    | 5.7        | 27.1       |
| 1990 .....        | 22,677   | 21,731      | 14,010        | 7,721   | 1,186      | 6,535      | 100.0                   | 64.5          | 35.5    | 5.5        | 30.1       |
| 1991 .....        | 23,748   | 22,427      | 13,923        | 8,504   | 1,252      | 7,252      | 100.0                   | 62.1          | 37.9    | 5.6        | 32.3       |
| TOTAL, SCIENCES   |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....        | 15,468   | 14,986      | 12,374        | 2,612   | 592        | 2,020      | 100.0                   | 82.6          | 17.4    | 4.0        | 13.5       |
| 1982 .....        | 15,371   | 14,778      | 12,123        | 2,655   | 558        | 2,097      | 100.0                   | 82.0          | 18.0    | 3.8        | 14.2       |
| 1983 .....        | 15,612   | 15,049      | 12,240        | 2,809   | 579        | 2,230      | 100.0                   | 81.3          | 18.7    | 3.8        | 14.8       |
| 1984 .....        | 15,601   | 14,995      | 12,011        | 2,984   | 561        | 2,423      | 100.0                   | 80.1          | 19.9    | 3.7        | 16.2       |
| 1985 .....        | 15,546   | 14,891      | 11,668        | 3,223   | 614        | 2,609      | 100.0                   | 78.4          | 21.6    | 4.1        | 17.5       |
| 1986 .....        | 15,875   | 14,899      | 11,486        | 3,413   | 644        | 2,769      | 100.0                   | 77.1          | 22.9    | 4.3        | 18.6       |
| 1987 .....        | 15,994   | 14,910      | 11,261        | 3,649   | 731        | 2,918      | 100.0                   | 75.5          | 24.5    | 4.9        | 19.6       |
| 1988 .....        | 16,551   | 15,396      | 11,436        | 3,960   | 762        | 3,198      | 100.0                   | 74.3          | 25.7    | 4.9        | 20.8       |
| 1989 .....        | 16,986   | 15,641      | 11,448        | 4,193   | 756        | 3,437      | 100.0                   | 73.2          | 26.8    | 4.8        | 22.0       |
| 1990 .....        | 17,784   | 17,118      | 12,057        | 5,061   | 799        | 4,262      | 100.0                   | 70.4          | 29.6    | 4.7        | 24.9       |
| 1991 .....        | 18,536   | 17,596      | 11,946        | 5,650   | 871        | 4,779      | 100.0                   | 67.9          | 32.1    | 4.9        | 27.2       |
| PHYSICAL SCIENCES |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....        | 2,627    | 2,545       | 1,956         | 589     | 147        | 442        | 100.0                   | 76.9          | 23.1    | 5.8        | 17.4       |
| 1982 .....        | 2,694    | 2,616       | 1,991         | 625     | 119        | 506        | 100.0                   | 76.1          | 23.9    | 4.5        | 19.3       |
| 1983 .....        | 2,802    | 2,723       | 2,064         | 659     | 120        | 539        | 100.0                   | 75.8          | 24.2    | 4.4        | 19.8       |
| 1984 .....        | 2,845    | 2,754       | 2,071         | 683     | 119        | 564        | 100.0                   | 75.2          | 24.8    | 4.3        | 20.5       |
| 1985 .....        | 2,916    | 2,798       | 2,043         | 755     | 135        | 620        | 100.0                   | 73.0          | 27.0    | 4.8        | 22.2       |
| 1986 .....        | 3,090    | 2,905       | 2,014         | 891     | 133        | 758        | 100.0                   | 69.3          | 30.7    | 4.6        | 26.1       |
| 1987 .....        | 3,212    | 3,025       | 2,080         | 945     | 147        | 798        | 100.0                   | 68.8          | 31.2    | 4.9        | 26.4       |
| 1988 .....        | 3,317    | 3,101       | 2,100         | 1,001   | 136        | 865        | 100.0                   | 67.7          | 32.3    | 4.4        | 27.9       |
| 1989 .....        | 3,244    | 3,007       | 1,973         | 1,034   | 146        | 888        | 100.0                   | 65.6          | 34.4    | 4.9        | 29.5       |
| 1990 .....        | 3,492    | 3,381       | 2,149         | 1,232   | 167        | 1,065      | 100.0                   | 63.6          | 36.4    | 4.9        | 31.5       |
| 1991 .....        | 3,602    | 3,431       | 2,048         | 1,383   | 178        | 1,205      | 100.0                   | 59.7          | 40.3    | 5.2        | 35.1       |

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                       | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|----------------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                            | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                            |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| PHYSICAL SCIENCES (con't.) |          |             |               |         |            |            |                         |               |         |            |            |
| Physics/astronomy          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981                       | 1,015    | 977         | 721           | 256     | 53         | 203        | 100.0                   | 73.8          | 26.2    | 5.4        | 20.8       |
| 1982                       | 1,014    | 983         | 706           | 277     | 35         | 242        | 100.0                   | 71.8          | 28.2    | 3.6        | 24.6       |
| 1983                       | 1,043    | 1,016       | 709           | 307     | 51         | 256        | 100.0                   | 69.8          | 30.2    | 5.0        | 25.2       |
| 1984                       | 1,080    | 1,041       | 739           | 302     | 36         | 266        | 100.0                   | 71.0          | 29.0    | 3.5        | 25.6       |
| 1985                       | 1,080    | 1,036       | 698           | 338     | 48         | 290        | 100.0                   | 67.4          | 32.6    | 4.6        | 28.0       |
| 1986                       | 1,187    | 1,099       | 694           | 405     | 40         | 365        | 100.0                   | 63.1          | 36.9    | 3.6        | 33.2       |
| 1987                       | 1,237    | 1,154       | 699           | 455     | 56         | 399        | 100.0                   | 60.6          | 39.4    | 4.9        | 34.6       |
| 1988                       | 1,302    | 1,208       | 723           | 485     | 62         | 423        | 100.0                   | 59.9          | 40.1    | 5.1        | 35.0       |
| 1989                       | 1,274    | 1,163       | 675           | 488     | 61         | 427        | 100.0                   | 58.0          | 42.0    | 5.2        | 36.7       |
| 1990                       | 1,392    | 1,356       | 751           | 605     | 69         | 536        | 100.0                   | 55.4          | 44.6    | 5.1        | 39.5       |
| 1991                       | 1,408    | 1,352       | 737           | 615     | 69         | 546        | 100.0                   | 54.5          | 45.5    | 5.1        | 40.4       |
| Chemistry                  |          |             |               |         |            |            |                         |               |         |            |            |
| 1981                       | 1,612    | 1,568       | 1,235         | 333     | 94         | 239        | 100.0                   | 78.8          | 21.2    | 6.0        | 15.2       |
| 1982                       | 1,680    | 1,633       | 1,285         | 348     | 84         | 264        | 100.0                   | 78.7          | 21.3    | 5.1        | 16.2       |
| 1983                       | 1,759    | 1,707       | 1,355         | 352     | 69         | 283        | 100.0                   | 79.4          | 20.6    | 4.0        | 16.6       |
| 1984                       | 1,765    | 1,713       | 1,332         | 381     | 83         | 298        | 100.0                   | 77.8          | 22.2    | 4.8        | 17.4       |
| 1985                       | 1,836    | 1,762       | 1,345         | 417     | 87         | 330        | 100.0                   | 76.3          | 23.7    | 4.9        | 18.7       |
| 1986                       | 1,903    | 1,806       | 1,320         | 486     | 93         | 393        | 100.0                   | 73.1          | 26.9    | 5.1        | 21.8       |
| 1987                       | 1,975    | 1,871       | 1,381         | 490     | 91         | 399        | 100.0                   | 73.8          | 26.2    | 4.9        | 21.3       |
| 1988                       | 2,015    | 1,893       | 1,377         | 516     | 74         | 442        | 100.0                   | 72.7          | 27.3    | 3.9        | 23.3       |
| 1989                       | 1,970    | 1,844       | 1,298         | 546     | 85         | 461        | 100.0                   | 70.4          | 29.6    | 4.6        | 25.0       |
| 1990                       | 2,100    | 2,025       | 1,398         | 627     | 98         | 529        | 100.0                   | 69.0          | 31.0    | 4.8        | 26.1       |
| 1991                       | 2,194    | 2,079       | 1,311         | 768     | 109        | 659        | 100.0                   | 63.1          | 36.9    | 5.2        | 31.7       |
| EARTH, ATMOS, & OCEAN SCI  |          |             |               |         |            |            |                         |               |         |            |            |
| 1981                       | 583      | 573         | 472           | 101     | 16         | 85         | 100.0                   | 82.4          | 17.6    | 2.8        | 14.8       |
| 1982                       | 657      | 638         | 528           | 110     | 29         | 81         | 100.0                   | 82.8          | 17.2    | 4.5        | 12.7       |
| 1983                       | 637      | 619         | 483           | 136     | 30         | 106        | 100.0                   | 78.0          | 22.0    | 4.8        | 17.1       |
| 1984                       | 614      | 605         | 474           | 131     | 25         | 106        | 100.0                   | 78.3          | 21.7    | 4.1        | 17.5       |
| 1985                       | 617      | 593         | 442           | 151     | 32         | 119        | 100.0                   | 74.5          | 25.5    | 5.4        | 20.1       |
| 1986                       | 589      | 552         | 422           | 130     | 24         | 106        | 100.0                   | 76.4          | 23.6    | 4.3        | 19.2       |
| 1987                       | 628      | 575         | 425           | 150     | 25         | 125        | 100.0                   | 73.9          | 26.1    | 4.3        | 21.7       |
| 1988                       | 728      | 679         | 511           | 168     | 31         | 137        | 100.0                   | 75.3          | 24.7    | 4.6        | 20.2       |
| 1989                       | 740      | 683         | 529           | 154     | 30         | 124        | 100.0                   | 77.5          | 22.5    | 4.4        | 18.2       |
| 1990                       | 769      | 733         | 535           | 198     | 23         | 175        | 100.0                   | 73.0          | 27.0    | 3.1        | 23.9       |
| 1991                       | 837      | 798         | 584           | 214     | 26         | 188        | 100.0                   | 73.2          | 26.8    | 3.3        | 23.6       |

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                   | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|------------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                        | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                        |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| MATHEMATICS            |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....             | 728      | 711         | 482           | 229     | 43         | 186        | 100.0                   | 67.8          | 32.2    | 6.0        | 26.2       |
| 1982 .....             | 720      | 691         | 458           | 233     | 41         | 192        | 100.0                   | 66.3          | 33.7    | 5.9        | 27.8       |
| 1983 .....             | 701      | 666         | 411           | 255     | 46         | 209        | 100.0                   | 61.7          | 38.3    | 6.9        | 31.4       |
| 1984 .....             | 698      | 675         | 407           | 268     | 36         | 232        | 100.0                   | 60.3          | 39.7    | 5.3        | 34.4       |
| 1985 .....             | 688      | 656         | 376           | 280     | 42         | 238        | 100.0                   | 57.3          | 42.7    | 6.4        | 36.3       |
| 1986 .....             | 729      | 674         | 366           | 308     | 36         | 272        | 100.0                   | 54.3          | 45.7    | 5.3        | 40.4       |
| 1987 .....             | 740      | 698         | 345           | 353     | 51         | 302        | 100.0                   | 49.4          | 50.6    | 7.3        | 43.3       |
| 1988 .....             | 749      | 691         | 342           | 349     | 44         | 305        | 100.0                   | 49.5          | 50.5    | 6.4        | 44.1       |
| 1989 .....             | 859      | 774         | 393           | 381     | 35         | 346        | 100.0                   | 50.8          | 49.2    | 4.5        | 44.7       |
| 1990 .....             | 892      | 846         | 375           | 471     | 47         | 424        | 100.0                   | 44.3          | 55.7    | 5.6        | 50.1       |
| 1991 .....             | 1,040    | 974         | 439           | 535     | 55         | 480        | 100.0                   | 45.1          | 54.9    | 5.6        | 49.3       |
| COMPUTER/INFO SCIENCES |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....             | 232      | 228         | 168           | 60      | 20         | 40         | 100.0                   | 73.7          | 26.3    | 8.8        | 17.5       |
| 1982 .....             | 220      | 214         | 143           | 71      | 12         | 59         | 100.0                   | 66.8          | 33.2    | 5.6        | 27.6       |
| 1983 .....             | 286      | 279         | 180           | 99      | 27         | 72         | 100.0                   | 64.5          | 35.5    | 9.7        | 25.8       |
| 1984 .....             | 295      | 284         | 178           | 106     | 17         | 89         | 100.0                   | 62.7          | 37.3    | 6.0        | 31.3       |
| 1985 .....             | 310      | 302         | 189           | 113     | 24         | 89         | 100.0                   | 62.6          | 37.4    | 7.9        | 29.5       |
| 1986 .....             | 399      | 372         | 202           | 170     | 47         | 123        | 100.0                   | 54.3          | 45.7    | 12.6       | 33.1       |
| 1987 .....             | 450      | 418         | 243           | 175     | 32         | 143        | 100.0                   | 58.1          | 41.9    | 7.7        | 34.2       |
| 1988 .....             | 515      | 502         | 284           | 218     | 42         | 176        | 100.0                   | 56.6          | 43.4    | 8.4        | 35.1       |
| 1989 .....             | 612      | 574         | 338           | 236     | 58         | 178        | 100.0                   | 58.9          | 41.1    | 10.1       | 31.0       |
| 1990 .....             | 705      | 674         | 348           | 326     | 55         | 271        | 100.0                   | 51.6          | 48.4    | 8.2        | 40.2       |
| 1991 .....             | 797      | 779         | 379           | 400     | 62         | 338        | 100.0                   | 48.7          | 51.3    | 8.0        | 43.4       |
| AGRIC & BIOL SCIENCES  |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....             | 4,786    | 4,663       | 3,891         | 772     | 159        | 613        | 100.0                   | 83.4          | 16.6    | 3.4        | 13.1       |
| 1982 .....             | 4,844    | 4,707       | 3,964         | 743     | 140        | 603        | 100.0                   | 84.2          | 15.8    | 3.0        | 12.8       |
| 1983 .....             | 4,756    | 4,638       | 3,859         | 779     | 150        | 629        | 100.0                   | 83.2          | 16.8    | 3.2        | 13.6       |
| 1984 .....             | 4,877    | 4,734       | 3,910         | 824     | 149        | 675        | 100.0                   | 82.6          | 17.4    | 3.1        | 14.3       |
| 1985 .....             | 4,904    | 4,761       | 3,831         | 930     | 151        | 779        | 100.0                   | 80.5          | 19.5    | 3.2        | 16.4       |
| 1986 .....             | 4,805    | 4,579       | 3,703         | 876     | 165        | 711        | 100.0                   | 80.9          | 19.1    | 3.6        | 15.5       |
| 1987 .....             | 4,815    | 4,554       | 3,565         | 989     | 208        | 781        | 100.0                   | 78.3          | 21.7    | 4.6        | 17.1       |
| 1988 .....             | 5,127    | 4,835       | 3,670         | 1,165   | 263        | 902        | 100.0                   | 75.9          | 24.1    | 5.4        | 18.7       |
| 1989 .....             | 5,203    | 4,915       | 3,724         | 1,191   | 227        | 964        | 100.0                   | 75.8          | 24.2    | 4.6        | 19.6       |
| 1990 .....             | 5,507    | 5,361       | 3,822         | 1,539   | 246        | 1,293      | 100.0                   | 71.3          | 28.7    | 4.6        | 24.1       |
| 1991 .....             | 5,714    | 5,513       | 3,799         | 1,714   | 263        | 1,451      | 100.0                   | 68.9          | 31.1    | 4.8        | 26.3       |

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                           | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|--------------------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                                | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                                |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| AGRIC & BIOL SCIENCES (con't.) |          |             |               |         |            |            |                         |               |         |            |            |
| Agricultural sciences          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                     | 982      | 954         | 594           | 360     | 35         | 325        | 100.0                   | 62.3          | 37.7    | 3.7        | 34.1       |
| 1982 .....                     | 951      | 930         | 647           | 283     | 23         | 260        | 100.0                   | 69.6          | 30.4    | 2.5        | 28.0       |
| 1983 .....                     | 1,015    | 992         | 649           | 343     | 36         | 307        | 100.0                   | 65.4          | 34.6    | 3.6        | 30.9       |
| 1984 .....                     | 997      | 974         | 625           | 349     | 35         | 314        | 100.0                   | 64.2          | 35.8    | 3.6        | 32.2       |
| 1985 .....                     | 1,111    | 1,081       | 683           | 398     | 43         | 355        | 100.0                   | 63.2          | 36.8    | 4.0        | 32.8       |
| 1986 .....                     | 998      | 947         | 579           | 368     | 48         | 320        | 100.0                   | 61.1          | 38.9    | 5.1        | 33.8       |
| 1987 .....                     | 976      | 921         | 584           | 337     | 48         | 289        | 100.0                   | 63.4          | 36.6    | 5.2        | 31.4       |
| 1988 .....                     | 1,015    | 955         | 539           | 416     | 71         | 345        | 100.0                   | 56.4          | 43.6    | 7.4        | 36.1       |
| 1989 .....                     | 1,088    | 1,008       | 607           | 401     | 45         | 356        | 100.0                   | 60.2          | 39.8    | 4.5        | 35.3       |
| 1990 .....                     | 1,176    | 1,126       | 630           | 496     | 57         | 439        | 100.0                   | 56.0          | 44.0    | 5.1        | 39.0       |
| 1991 .....                     | 1,072    | 1,031       | 551           | 480     | 56         | 424        | 100.0                   | 53.4          | 46.6    | 5.4        | 41.1       |
| Biological sciences            |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                     | 3,804    | 3,709       | 3,297         | 412     | 124        | 288        | 100.0                   | 88.9          | 11.1    | 3.3        | 7.8        |
| 1982 .....                     | 3,893    | 3,777       | 3,317         | 460     | 117        | 343        | 100.0                   | 87.8          | 12.2    | 3.1        | 9.1        |
| 1983 .....                     | 3,741    | 3,646       | 3,210         | 436     | 114        | 322        | 100.0                   | 88.0          | 12.0    | 3.1        | 8.8        |
| 1984 .....                     | 3,880    | 3,760       | 3,285         | 475     | 114        | 361        | 100.0                   | 87.4          | 12.6    | 3.0        | 9.6        |
| 1985 .....                     | 3,793    | 3,680       | 3,148         | 532     | 108        | 424        | 100.0                   | 85.5          | 14.5    | 2.9        | 11.5       |
| 1986 .....                     | 3,807    | 3,632       | 3,124         | 508     | 117        | 391        | 100.0                   | 86.0          | 14.0    | 3.2        | 10.8       |
| 1987 .....                     | 3,839    | 3,633       | 2,981         | 652     | 160        | 492        | 100.0                   | 82.1          | 17.9    | 4.4        | 13.5       |
| 1988 .....                     | 4,112    | 3,880       | 3,131         | 749     | 192        | 557        | 100.0                   | 80.7          | 19.3    | 4.9        | 14.4       |
| 1989 .....                     | 4,115    | 3,907       | 3,117         | 790     | 182        | 608        | 100.0                   | 79.8          | 20.2    | 4.7        | 15.6       |
| 1990 .....                     | 4,331    | 4,235       | 3,192         | 1,043   | 189        | 854        | 100.0                   | 75.4          | 24.6    | 4.5        | 20.2       |
| 1991 .....                     | 4,642    | 4,482       | 3,248         | 1,234   | 207        | 1,027      | 100.0                   | 72.5          | 27.5    | 4.6        | 22.9       |
| SOCIAL SCIENCES                |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                     | 3,154    | 3,028       | 2,294         | 734     | 160        | 574        | 100.0                   | 75.8          | 24.2    | 5.3        | 19.0       |
| 1982 .....                     | 3,077    | 2,924       | 2,163         | 761     | 170        | 591        | 100.0                   | 74.0          | 26.0    | 5.8        | 20.2       |
| 1983 .....                     | 3,083    | 2,937       | 2,199         | 738     | 142        | 596        | 100.0                   | 74.9          | 25.1    | 4.8        | 20.3       |
| 1984 .....                     | 3,015    | 2,869       | 2,036         | 833     | 164        | 669        | 100.0                   | 71.0          | 29.0    | 5.7        | 23.3       |
| 1985 .....                     | 2,994    | 2,836       | 1,982         | 854     | 171        | 683        | 100.0                   | 69.9          | 30.1    | 6.0        | 24.1       |
| 1986 .....                     | 3,139    | 2,905       | 2,013         | 892     | 174        | 718        | 100.0                   | 69.3          | 30.7    | 6.0        | 24.7       |
| 1987 .....                     | 2,980    | 2,749       | 1,856         | 893     | 209        | 684        | 100.0                   | 67.5          | 32.5    | 7.6        | 24.9       |
| 1988 .....                     | 3,051    | 2,776       | 1,862         | 914     | 185        | 729        | 100.0                   | 67.1          | 32.9    | 6.7        | 26.3       |
| 1989 .....                     | 3,125    | 2,844       | 1,807         | 1,037   | 206        | 831        | 100.0                   | 63.5          | 36.5    | 7.2        | 29.2       |
| 1990 .....                     | 3,150    | 3,024       | 1,919         | 1,105   | 188        | 917        | 100.0                   | 63.5          | 36.5    | 6.2        | 30.3       |
| 1991 .....                     | 3,306    | 3,124       | 1,901         | 1,223   | 227        | 996        | 100.0                   | 60.9          | 39.1    | 7.3        | 31.8       |

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                  | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|-----------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                       | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                       |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| PSYCHOLOGY            |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....            | 3,358    | 3,238       | 3,111         | 127     | 47         | 80         | 100.0                   | 96.1          | 3.9     | 1.5        | 2.5        |
| 1982 .....            | 3,159    | 2,988       | 2,876         | 112     | 47         | 65         | 100.0                   | 96.3          | 3.7     | 1.6        | 2.2        |
| 1983 .....            | 3,347    | 3,187       | 3,044         | 143     | 64         | 79         | 100.0                   | 95.5          | 4.5     | 2.0        | 2.5        |
| 1984 .....            | 3,257    | 3,074       | 2,935         | 139     | 51         | 88         | 100.0                   | 95.5          | 4.5     | 1.7        | 2.9        |
| 1985 .....            | 3,117    | 2,945       | 2,805         | 140     | 59         | 81         | 100.0                   | 95.2          | 4.8     | 2.0        | 2.8        |
| 1986 .....            | 3,124    | 2,912       | 2,766         | 146     | 65         | 81         | 100.0                   | 95.0          | 5.0     | 2.2        | 2.8        |
| 1987 .....            | 3,169    | 2,891       | 2,747         | 144     | 59         | 85         | 100.0                   | 95.0          | 5.0     | 2.0        | 2.9        |
| 1988 .....            | 3,064    | 2,812       | 2,667         | 145     | 61         | 84         | 100.0                   | 94.8          | 5.2     | 2.2        | 3.0        |
| 1989 .....            | 3,203    | 2,844       | 2,684         | 160     | 54         | 106        | 100.0                   | 94.4          | 5.6     | 1.9        | 3.7        |
| 1990 .....            | 3,269    | 3,099       | 2,909         | 190     | 73         | 117        | 100.0                   | 93.9          | 6.1     | 2.4        | 3.8        |
| 1991 .....            | 3,240    | 2,977       | 2,796         | 181     | 60         | 121        | 100.0                   | 93.9          | 6.1     | 2.0        | 4.1        |
| TOTAL, ENGINEERING(2) |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....            | 2,528    | 2,413       | 1,170         | 1,243   | 301        | 942        | 100.0                   | 48.5          | 51.5    | 12.5       | 39.0       |
| 1982 .....            | 2,646    | 2,495       | 1,169         | 1,326   | 296        | 1,030      | 100.0                   | 46.9          | 53.1    | 11.9       | 41.3       |
| 1983 .....            | 2,781    | 2,652       | 1,163         | 1,489   | 319        | 1,170      | 100.0                   | 43.9          | 56.1    | 12.0       | 44.1       |
| 1984 .....            | 2,913    | 2,782       | 1,239         | 1,543   | 274        | 1,269      | 100.0                   | 44.5          | 55.5    | 9.8        | 45.6       |
| 1985 .....            | 3,166    | 3,013       | 1,279         | 1,734   | 315        | 1,419      | 100.0                   | 42.4          | 57.6    | 10.5       | 47.1       |
| 1986 .....            | 3,376    | 3,098       | 1,383         | 1,715   | 343        | 1,372      | 100.0                   | 44.6          | 55.4    | 11.1       | 44.3       |
| 1987 .....            | 3,712    | 3,445       | 1,558         | 1,887   | 355        | 1,532      | 100.0                   | 45.2          | 54.8    | 10.3       | 44.5       |
| 1988 .....            | 4,188    | 3,868       | 1,781         | 2,087   | 366        | 1,721      | 100.0                   | 46.0          | 54.0    | 9.5        | 44.5       |
| 1989 .....            | 4,544    | 4,170       | 1,864         | 2,306   | 365        | 1,941      | 100.0                   | 44.7          | 55.3    | 8.8        | 46.5       |
| 1990 .....            | 4,893    | 4,613       | 1,953         | 2,660   | 387        | 2,273      | 100.0                   | 42.3          | 57.7    | 8.4        | 49.3       |
| 1991 .....            | 5,212    | 4,831       | 1,977         | 2,854   | 381        | 2,473      | 100.0                   | 40.9          | 59.1    | 7.9        | 51.2       |
| Chemical engineering  |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....            | 296      | 283         | 128           | 155     | 43         | 112        | 100.0                   | 45.2          | 54.8    | 15.2       | 39.6       |
| 1982 .....            | 306      | 287         | 136           | 151     | 37         | 114        | 100.0                   | 47.4          | 52.6    | 12.9       | 39.7       |
| 1983 .....            | 349      | 338         | 162           | 176     | 38         | 138        | 100.0                   | 47.9          | 52.1    | 11.2       | 40.8       |
| 1984 .....            | 361      | 345         | 167           | 178     | 32         | 146        | 100.0                   | 48.4          | 51.6    | 9.3        | 42.3       |
| 1985 .....            | 440      | 429         | 218           | 211     | 39         | 172        | 100.0                   | 50.8          | 49.2    | 9.1        | 40.1       |
| 1986 .....            | 476      | 445         | 219           | 226     | 51         | 175        | 100.0                   | 49.2          | 50.8    | 11.5       | 39.3       |
| 1987 .....            | 527      | 510         | 280           | 230     | 48         | 182        | 100.0                   | 54.9          | 45.1    | 9.4        | 35.7       |
| 1988 .....            | 624      | 587         | 335           | 252     | 44         | 208        | 100.0                   | 57.1          | 42.9    | 7.5        | 35.4       |
| 1989 .....            | 625      | 597         | 352           | 245     | 55         | 190        | 100.0                   | 59.0          | 41.0    | 9.2        | 31.8       |
| 1990 .....            | 561      | 547         | 307           | 240     | 42         | 198        | 100.0                   | 56.1          | 43.9    | 7.7        | 36.2       |
| 1991 .....            | 620      | 598         | 316           | 282     | 44         | 238        | 100.0                   | 52.8          | 47.2    | 7.4        | 39.8       |

See footnotes at end of table.

Table 4. Science and engineering (S&amp;E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                       | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|----------------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                            | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                            |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| TOTAL ENGINEERING (con't.) |          |             |               |         |            |            |                         |               |         |            |            |
| Civil engineering          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 287      | 274         | 105           | 169     | 34         | 135        | 100.0                   | 38.3          | 61.7    | 12.4       | 49.3       |
| 1982 .....                 | 308      | 295         | 110           | 185     | 27         | 158        | 100.0                   | 37.3          | 62.7    | 9.2        | 53.6       |
| 1983 .....                 | 354      | 341         | 124           | 217     | 30         | 187        | 100.0                   | 36.4          | 63.6    | 8.8        | 54.8       |
| 1984 .....                 | 351      | 331         | 124           | 207     | 40         | 167        | 100.0                   | 37.5          | 62.5    | 12.1       | 50.5       |
| 1985 .....                 | 358      | 344         | 114           | 230     | 38         | 192        | 100.0                   | 33.1          | 66.9    | 11.0       | 55.8       |
| 1986 .....                 | 387      | 356         | 122           | 234     | 45         | 189        | 100.0                   | 34.3          | 65.7    | 12.6       | 53.1       |
| 1987 .....                 | 441      | 402         | 146           | 256     | 36         | 220        | 100.0                   | 36.3          | 63.7    | 9.0        | 54.7       |
| 1988 .....                 | 489      | 462         | 168           | 294     | 44         | 250        | 100.0                   | 36.4          | 63.6    | 9.5        | 54.1       |
| 1989 .....                 | 498      | 472         | 166           | 306     | 55         | 251        | 100.0                   | 35.2          | 64.8    | 11.7       | 53.2       |
| 1990 .....                 | 505      | 477         | 156           | 321     | 59         | 262        | 100.0                   | 32.7          | 67.3    | 12.4       | 54.9       |
| 1991 .....                 | 509      | 477         | 139           | 338     | 35         | 303        | 100.0                   | 29.1          | 70.9    | 7.3        | 63.5       |
| Electrical engineering     |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 478      | 453         | 246           | 207     | 58         | 149        | 100.0                   | 54.3          | 45.7    | 12.8       | 32.9       |
| 1982 .....                 | 544      | 510         | 241           | 269     | 62         | 207        | 100.0                   | 47.3          | 52.7    | 12.2       | 40.6       |
| 1983 .....                 | 517      | 488         | 218           | 270     | 69         | 201        | 100.0                   | 44.7          | 55.3    | 14.1       | 41.2       |
| 1984 .....                 | 593      | 562         | 255           | 307     | 59         | 248        | 100.0                   | 45.4          | 54.6    | 10.5       | 44.1       |
| 1985 .....                 | 631      | 586         | 247           | 339     | 65         | 274        | 100.0                   | 42.2          | 57.8    | 11.1       | 46.8       |
| 1986 .....                 | 706      | 636         | 291           | 345     | 70         | 275        | 100.0                   | 45.8          | 54.2    | 11.0       | 43.2       |
| 1987 .....                 | 691      | 615         | 291           | 324     | 60         | 264        | 100.0                   | 47.3          | 52.7    | 9.8        | 42.9       |
| 1988 .....                 | 886      | 803         | 359           | 444     | 90         | 354        | 100.0                   | 44.7          | 55.3    | 11.2       | 44.1       |
| 1989 .....                 | 995      | 901         | 394           | 507     | 84         | 423        | 100.0                   | 43.7          | 56.3    | 9.3        | 46.9       |
| 1990 .....                 | 1,110    | 1,044       | 438           | 606     | 89         | 517        | 100.0                   | 42.0          | 58.0    | 8.5        | 49.5       |
| 1991 .....                 | 1,206    | 1,132       | 465           | 667     | 113        | 554        | 100.0                   | 41.1          | 58.9    | 10.0       | 48.9       |
| Materials science          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 113      | 108         | 55            | 53      | 18         | 35         | 100.0                   | 50.9          | 49.1    | 16.7       | 32.4       |
| 1982 .....                 | 147      | 130         | 63            | 67      | 13         | 54         | 100.0                   | 48.5          | 51.5    | 10.0       | 41.5       |
| 1983 .....                 | 157      | 143         | 69            | 74      | 15         | 59         | 100.0                   | 48.3          | 51.7    | 10.5       | 41.3       |
| 1984 .....                 | 168      | 167         | 76            | 91      | 17         | 74         | 100.0                   | 45.5          | 54.5    | 10.2       | 44.3       |
| 1985 .....                 | 188      | 181         | 89            | 92      | 13         | 79         | 100.0                   | 49.2          | 50.8    | 7.2        | 43.6       |
| 1986 .....                 | 187      | 176         | 82            | 94      | 19         | 75         | 100.0                   | 46.6          | 53.4    | 10.8       | 42.6       |
| 1987 .....                 | 238      | 226         | 108           | 118     | 22         | 96         | 100.0                   | 47.8          | 52.2    | 9.7        | 42.5       |
| 1988 .....                 | 252      | 237         | 119           | 118     | 19         | 99         | 100.0                   | 50.2          | 49.8    | 8.0        | 41.8       |
| 1989 .....                 | 257      | 234         | 119           | 115     | 10         | 105        | 100.0                   | 50.9          | 49.1    | 4.3        | 44.9       |
| 1990 .....                 | 307      | 292         | 126           | 166     | 16         | 150        | 100.0                   | 43.2          | 56.8    | 5.5        | 51.4       |
| 1991 .....                 | 362      | 341         | 152           | 189     | 25         | 164        | 100.0                   | 44.6          | 55.4    | 7.3        | 48.1       |

See footnotes at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1981-91--continued

| Year                       | Number   |             |               |         |            |            | Percentage distribution |               |         |            |            |
|----------------------------|----------|-------------|---------------|---------|------------|------------|-------------------------|---------------|---------|------------|------------|
|                            | Total(1) | Citiz known | United States | Foreign |            |            | Citiz known             | United States | Foreign |            |            |
|                            |          |             |               | Total   | Perm visas | Temp visas |                         |               | Total   | Perm visas | Temp visas |
| TOTAL ENGINEERING (con't.) |          |             |               |         |            |            |                         |               |         |            |            |
| Mechanical engineering     |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 360      | 346         | 158           | 188     | 44         | 144        | 100.0                   | 45.7          | 54.3    | 12.7       | 41.6       |
| 1982 .....                 | 437      | 423         | 198           | 225     | 65         | 160        | 100.0                   | 46.8          | 53.2    | 15.4       | 37.8       |
| 1983 .....                 | 379      | 365         | 145           | 220     | 47         | 173        | 100.0                   | 39.7          | 60.3    | 12.9       | 47.4       |
| 1984 .....                 | 427      | 407         | 163           | 244     | 39         | 205        | 100.0                   | 40.0          | 60.0    | 9.6        | 50.4       |
| 1985 .....                 | 513      | 490         | 193           | 297     | 58         | 239        | 100.0                   | 39.4          | 60.6    | 11.8       | 48.8       |
| 1986 .....                 | 536      | 498         | 209           | 289     | 58         | 231        | 100.0                   | 42.0          | 58.0    | 11.6       | 46.4       |
| 1987 .....                 | 657      | 611         | 241           | 370     | 67         | 303        | 100.0                   | 39.4          | 60.6    | 11.0       | 49.6       |
| 1988 .....                 | 715      | 660         | 256           | 404     | 71         | 333        | 100.0                   | 38.8          | 61.2    | 10.8       | 50.5       |
| 1989 .....                 | 760      | 683         | 259           | 424     | 66         | 358        | 100.0                   | 37.9          | 62.1    | 9.7        | 52.4       |
| 1990 .....                 | 883      | 831         | 299           | 532     | 68         | 464        | 100.0                   | 36.0          | 64.0    | 8.2        | 55.8       |
| 1991 .....                 | 874      | 795         | 279           | 516     | 59         | 457        | 100.0                   | 35.1          | 64.9    | 7.4        | 57.5       |
| TOTAL, NON-S&E(3)          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 13,361   | 12,883      | 11,517        | 1,366   | 388        | 978        | 100.0                   | 89.4          | 10.6    | 3.0        | 7.6        |
| 1982 .....                 | 13,094   | 12,550      | 11,099        | 1,451   | 374        | 1,077      | 100.0                   | 88.4          | 11.6    | 3.0        | 8.6        |
| 1983 .....                 | 12,889   | 12,432      | 10,956        | 1,476   | 377        | 1,099      | 100.0                   | 88.1          | 11.9    | 3.0        | 8.8        |
| 1984 .....                 | 12,823   | 12,306      | 10,777        | 1,529   | 389        | 1,140      | 100.0                   | 87.6          | 12.4    | 3.2        | 9.3        |
| 1985 .....                 | 12,585   | 12,018      | 10,423        | 1,595   | 395        | 1,200      | 100.0                   | 86.7          | 13.3    | 3.3        | 10.0       |
| 1986 .....                 | 12,644   | 11,792      | 10,212        | 1,580   | 445        | 1,135      | 100.0                   | 86.6          | 13.4    | 3.8        | 9.6        |
| 1987 .....                 | 12,657   | 11,816      | 10,164        | 1,652   | 492        | 1,160      | 100.0                   | 86.0          | 14.0    | 4.2        | 9.8        |
| 1988 .....                 | 12,750   | 11,841      | 10,071        | 1,770   | 495        | 1,275      | 100.0                   | 85.1          | 14.9    | 4.2        | 10.8       |
| 1989 .....                 | 12,788   | 11,862      | 10,088        | 1,774   | 505        | 1,269      | 100.0                   | 85.0          | 15.0    | 4.3        | 10.7       |
| 1990 .....                 | 13,380   | 12,924      | 10,876        | 2,048   | 509        | 1,539      | 100.0                   | 84.2          | 15.8    | 3.9        | 11.9       |
| 1991 .....                 | 13,703   | 12,960      | 10,798        | 2,162   | 562        | 1,600      | 100.0                   | 83.3          | 16.7    | 4.3        | 12.3       |
| TOTAL, ALL FIELDS          |          |             |               |         |            |            |                         |               |         |            |            |
| 1981 .....                 | 31,357   | 30,282      | 25,061        | 5,221   | 1,281      | 3,940      | 100.0                   | 82.8          | 17.2    | 4.2        | 13.0       |
| 1982 .....                 | 31,111   | 29,823      | 24,391        | 5,432   | 1,228      | 4,204      | 100.0                   | 81.8          | 18.2    | 4.1        | 14.1       |
| 1983 .....                 | 31,282   | 30,133      | 24,359        | 5,774   | 1,275      | 4,499      | 100.0                   | 80.8          | 19.2    | 4.2        | 14.9       |
| 1984 .....                 | 31,337   | 30,083      | 24,027        | 6,056   | 1,224      | 4,832      | 100.0                   | 79.9          | 20.1    | 4.1        | 16.1       |
| 1985 .....                 | 31,297   | 29,922      | 23,370        | 6,552   | 1,324      | 5,228      | 100.0                   | 78.1          | 21.9    | 4.4        | 17.5       |
| 1986 .....                 | 31,895   | 29,789      | 23,081        | 6,708   | 1,432      | 5,276      | 100.0                   | 77.5          | 22.5    | 4.8        | 17.7       |
| 1987 .....                 | 32,363   | 30,171      | 22,983        | 7,188   | 1,578      | 5,610      | 100.0                   | 76.2          | 23.8    | 5.2        | 18.6       |
| 1988 .....                 | 33,489   | 31,105      | 23,288        | 7,817   | 1,623      | 6,194      | 100.0                   | 74.9          | 25.1    | 5.2        | 19.9       |
| 1989 .....                 | 34,318   | 31,673      | 23,400        | 8,273   | 1,626      | 6,647      | 100.0                   | 73.9          | 26.1    | 5.1        | 21.0       |
| 1990 .....                 | 36,057   | 34,655      | 24,886        | 9,769   | 1,695      | 8,074      | 100.0                   | 71.8          | 28.2    | 4.9        | 23.3       |
| 1991 .....                 | 37,451   | 35,387      | 24,721        | 10,666  | 1,814      | 8,852      | 100.0                   | 69.9          | 30.1    | 5.1        | 25.0       |

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91

| Country of citizenship          | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                 | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| <b>TOTAL, NON-U.S. CITIZENS</b> |                   |       |       |       |       |       |       |       |       |       |       |
| <b>SCIENCES</b>                 |                   |       |       |       |       |       |       |       |       |       |       |
| Total, foreign citizenship..... | 2,612             | 2,655 | 2,809 | 2,984 | 3,223 | 3,413 | 3,649 | 3,960 | 4,193 | 5,061 | 5,650 |
| Canada.....                     | 141               | 130   | 156   | 151   | 130   | 159   | 152   | 175   | 182   | 211   | 225   |
| Mexico & Central America.....   | 73                | 72    | 92    | 83    | 93    | 97    | 87    | 91    | 121   | 120   | 143   |
| Mexico.....                     | 54                | 57    | 67    | 57    | 77    | 77    | 65    | 65    | 92    | 78    | 105   |
| Caribbean.....                  | 23                | 17    | 13    | 27    | 25    | 23    | 17    | 26    | 24    | 29    | 48    |
| South America.....              | 218               | 175   | 193   | 214   | 201   | 237   | 232   | 226   | 224   | 255   | 291   |
| Argentina.....                  | 21                | 19    | 26    | 31    | 21    | 30    | 19    | 32    | 37    | 54    | 48    |
| Brazil.....                     | 99                | 64    | 75    | 81    | 68    | 79    | 74    | 69    | 70    | 67    | 82    |
| Chile.....                      | 24                | 21    | 24    | 29    | 35    | 36    | 35    | 36    | 38    | 39    | 44    |
| Colombia.....                   | 16                | 23    | 20    | 21    | 18    | 20    | 20    | 37    | 22    | 32    | 37    |
| Europe.....                     | 302               | 304   | 334   | 357   | 380   | 411   | 471   | 518   | 511   | 591   | 744   |
| Belgium.....                    | 15                | 5     | 8     | 11    | 10    | 16    | 10    | 15    | 10    | 19    | 34    |
| England.....                    | 84                | 74    | 77    | 88    | 97    | 64    | 85    | 104   | 82    | 85    | 115   |
| France.....                     | 17                | 28    | 19    | 31    | 17    | 21    | 32    | 31    | 33    | 37    | 46    |
| Germany.....                    | 27                | 30    | 40    | 37    | 41    | 52    | 67    | 67    | 85    | 107   | 107   |
| Greece.....                     | 36                | 37    | 34    | 43    | 38    | 54    | 62    | 60    | 67    | 68    | 96    |
| Italy.....                      | 15                | 18    | 23    | 25    | 38    | 40    | 36    | 56    | 41    | 49    | 69    |
| East Asia.....                  | 524               | 645   | 710   | 766   | 887   | 978   | 1,165 | 1,348 | 1,567 | 2,328 | 2,755 |
| Taiwan.....                     | 226               | 303   | 327   | 342   | 356   | 356   | 389   | 386   | 427   | 535   | 509   |
| China, Peoples Republic of..... | -                 | 3     | 8     | 33    | 89    | 143   | 206   | 345   | 454   | 728   | 1,181 |
| China, unspecified.....         | -                 | 1     | -     | 2     | 3     | -     | 6     | 4     | 6     | 104   | 104   |
| Hong Kong.....                  | 71                | 60    | 68    | 57    | 66    | 46    | 65    | 48    | 55    | 64    | 87    |
| Japan.....                      | 46                | 57    | 72    | 64    | 72    | 80    | 68    | 79    | 86    | 130   | 92    |
| Korea.....                      | 85                | 109   | 132   | 151   | 190   | 223   | 309   | 363   | 442   | 611   | 655   |
| Thailand.....                   | 60                | 67    | 61    | 72    | 71    | 82    | 75    | 72    | 60    | 90    | 70    |
| West Asia.....                  | 554               | 603   | 650   | 716   | 674   | 736   | 745   | 693   | 728   | 901   | 849   |
| India.....                      | 203               | 197   | 205   | 243   | 246   | 265   | 299   | 265   | 285   | 392   | 381   |
| Iran.....                       | 120               | 148   | 140   | 168   | 117   | 113   | 94    | 91    | 88    | 118   | 97    |
| Iraq.....                       | 23                | 22    | 36    | 20    | 35    | 23    | 33    | 28    | 16    | 13    | 13    |
| Israel.....                     | 61                | 57    | 64    | 56    | 44    | 55    | 47    | 38    | 49    | 55    | 59    |
| Lebanon.....                    | 11                | 13    | 11    | 13    | 15    | 17    | 16    | 21    | 26    | 10    | 16    |
| Turkey.....                     | 19                | 25    | 32    | 31    | 28    | 35    | 43    | 39    | 26    | 47    | 33    |
| Pakistan.....                   | 18                | 30    | 25    | 27    | 28    | 36    | 42    | 32    | 46    | 50    | 58    |
| Australasia.....                | 118               | 125   | 136   | 128   | 119   | 127   | 111   | 131   | 140   | 148   | 160   |
| Australia.....                  | 32                | 42    | 42    | 46    | 35    | 28    | 37    | 37    | 39    | 42    | 26    |
| Indonesia, Republic of.....     | 35                | 27    | 38    | 26    | 27    | 31    | 29    | 31    | 40    | 39    | 45    |
| New Zealand.....                | 14                | 13    | 18    | 12    | 15    | 16    | 12    | 13    | 24    | 14    | 19    |
| Philippines.....                | 37                | 43    | 38    | 42    | 40    | 52    | 31    | 49    | 36    | 52    | 70    |
| Africa.....                     | 279               | 293   | 301   | 313   | 364   | 330   | 298   | 311   | 304   | 349   | 324   |
| Egypt.....                      | 38                | 45    | 50    | 45    | 59    | 47    | 58    | 68    | 60    | 77    | 54    |
| Nigeria.....                    | 98                | 82    | 77    | 64    | 88    | 64    | 73    | 66    | 47    | 59    | 59    |
| Country unknown.....            | 380               | 291   | 224   | 229   | 350   | 315   | 371   | 441   | 392   | 129   | 111   |

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

| Country of citizenship            | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|-----------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                   | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| TOTAL, NON-U.S. CITIZENS (con't.) |                   |       |       |       |       |       |       |       |       |       |       |
| ENGINEERING                       |                   |       |       |       |       |       |       |       |       |       |       |
| Total, foreign citizenship.....   | 1,243             | 1,326 | 1,489 | 1,543 | 1,734 | 1,715 | 1,887 | 2,087 | 2,306 | 2,660 | 2,854 |
| Canada.....                       | 17                | 18    | 23    | 22    | 22    | 18    | 29    | 28    | 38    | 40    | 51    |
| Mexico & Central America.....     | 24                | 17    | 34    | 22    | 27    | 25    | 27    | 33    | 33    | 36    | 26    |
| Mexico.....                       | 21                | 13    | 29    | 19    | 24    | 20    | 21    | 27    | 28    | 25    | 21    |
| Caribbean.....                    | -                 | 3     | 9     | 5     | 7     | 6     | 6     | 2     | 5     | 7     | 3     |
| South America.....                | 74                | 65    | 76    | 62    | 53    | 63    | 79    | 69    | 73    | 84    | 81    |
| Argentina.....                    | 6                 | 5     | 8     | 10    | 11    | 10    | 9     | 6     | 6     | 12    | 12    |
| Brazil.....                       | 36                | 29    | 26    | 27    | 15    | 17    | 38    | 25    | 30    | 31    | 32    |
| Chile.....                        | 10                | 7     | 11    | 2     | 6     | 8     | 10    | 9     | 9     | 11    | 8     |
| Colombia.....                     | 3                 | 4     | 5     | 11    | 4     | 4     | 7     | 9     | 5     | 8     | 11    |
| Europe.....                       | 103               | 113   | 120   | 109   | 111   | 148   | 152   | 171   | 198   | 205   | 185   |
| Belgium.....                      | 5                 | 7     | 7     | 6     | 9     | 4     | 6     | 6     | 5     | 12    | 9     |
| England.....                      | 16                | 16    | 10    | 12    | 6     | 12    | 9     | 11    | 14    | 14    | 10    |
| France.....                       | 8                 | 12    | 14    | 17    | 11    | 13    | 16    | 22    | 18    | 27    | 19    |
| Germany.....                      | 8                 | 6     | 3     | 2     | 7     | 10    | 7     | 11    | 17    | 15    | 7     |
| Greece.....                       | 28                | 23    | 32    | 35    | 30    | 49    | 61    | 58    | 70    | 57    | 62    |
| Italy.....                        | 2                 | 5     | 7     | 10    | 7     | 8     | 10    | 7     | 15    | 14    | 12    |
| East Asia.....                    | 362               | 422   | 481   | 582   | 666   | 682   | 803   | 889   | 988   | 1,264 | 1,543 |
| Taiwan.....                       | 218               | 257   | 277   | 322   | 387   | 351   | 398   | 400   | 427   | 474   | 573   |
| China, Peoples Republic of.....   | -                 | -     | 5     | 27    | 48    | 55    | 84    | 133   | 156   | 289   | 415   |
| China, unspecified.....           | 1                 | 2     | -     | -     | -     | 2     | 3     | 1     | 8     | 45    | 37    |
| Hong Kong.....                    | 29                | 32    | 30    | 30    | 28    | 27    | 22    | 33    | 38    | 30    | 28    |
| Japan.....                        | 31                | 31    | 31    | 38    | 25    | 28    | 15    | 24    | 19    | 17    | 28    |
| Korea.....                        | 50                | 63    | 104   | 115   | 133   | 175   | 238   | 257   | 308   | 359   | 412   |
| Thailand.....                     | 23                | 25    | 27    | 36    | 25    | 26    | 20    | 24    | 16    | 21    | 18    |
| West Asia.....                    | 372               | 412   | 491   | 464   | 514   | 470   | 477   | 532   | 578   | 737   | 725   |
| India.....                        | 176               | 160   | 178   | 194   | 212   | 204   | 204   | 255   | 252   | 313   | 338   |
| Iran.....                         | 74                | 99    | 138   | 119   | 116   | 100   | 88    | 81    | 110   | 139   | 114   |
| Iraq.....                         | 4                 | 4     | 7     | 6     | 6     | 4     | 10    | 8     | 9     | 14    | 8     |
| Israel.....                       | 33                | 25    | 45    | 22    | 22    | 24    | 19    | 23    | 19    | 19    | 26    |
| Lebanon.....                      | 8                 | 8     | 13    | 15    | 11    | 11    | 27    | 18    | 25    | 35    | 37    |
| Turkey.....                       | 30                | 43    | 36    | 41    | 56    | 49    | 43    | 42    | 52    | 58    | 61    |
| Pakistan.....                     | 8                 | 13    | 13    | 10    | 18    | 23    | 17    | 20    | 15    | 26    | 32    |
| Australasia.....                  | 11                | 21    | 23    | 29    | 28    | 21    | 24    | 24    | 26    | 25    | 40    |
| Australia.....                    | 4                 | 4     | 8     | 5     | 4     | 6     | 5     | 2     | 2     | 3     | 7     |
| Indonesia, Republic of.....       | 4                 | 7     | 9     | 11    | 15    | 9     | 13    | 11    | 12    | 14    | 17    |
| New Zealand.....                  | -                 | 6     | -     | 4     | 4     | 1     | 2     | 4     | 3     | 2     | 2     |
| Philippines.....                  | 3                 | 4     | 6     | 9     | 5     | 5     | 4     | 7     | 9     | 6     | 14    |
| Africa.....                       | 104               | 98    | 125   | 139   | 137   | 118   | 107   | 138   | 140   | 187   | 149   |
| Egypt.....                        | 41                | 38    | 43    | 45    | 48    | 53    | 40    | 47    | 49    | 82    | 55    |
| Nigeria.....                      | 31                | 16    | 29    | 30    | 29    | 15    | 16    | 21    | 11    | 23    | 18    |
| Country unknown.....              | 176               | 157   | 107   | 109   | 169   | 164   | 183   | 201   | 227   | 75    | 51    |

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

| Country of citizenship          | Year of doctorate |      |      |      |      |      |      |      |      |      |      |
|---------------------------------|-------------------|------|------|------|------|------|------|------|------|------|------|
|                                 | 1981              | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
| <b>PERMANENT VISAS</b>          |                   |      |      |      |      |      |      |      |      |      |      |
| <b>SCIENCES</b>                 |                   |      |      |      |      |      |      |      |      |      |      |
| Total, foreign citizenship..... | 592               | 558  | 579  | 561  | 614  | 644  | 731  | 762  | 756  | 799  | 871  |
| Canada.....                     | 30                | 29   | 40   | 32   | 27   | 46   | 37   | 45   | 46   | 46   | 57   |
| Mexico & Central America.....   | 5                 | 11   | 16   | 11   | 9    | 15   | 12   | 12   | 22   | 20   | 27   |
| Mexico.....                     | 4                 | 5    | 9    | 2    | 7    | 10   | 7    | 10   | 13   | 12   | 20   |
| Caribbean.....                  | 9                 | 7    | 6    | 13   | 15   | 13   | 5    | 14   | 8    | 12   | 18   |
| South America.....              | 26                | 15   | 22   | 16   | 23   | 40   | 33   | 37   | 34   | 54   | 49   |
| Argentina.....                  | 3                 | 2    | 7    | 2    | 2    | 6    | 3    | 8    | 4    | 9    | 10   |
| Brazil.....                     | 7                 | 2    | 4    | 1    | 4    | 3    | 4    | 5    | 8    | 10   | 6    |
| Chile.....                      | 6                 | 1    | 2    | 3    | 5    | 10   | 5    | 4    | 5    | 7    | 6    |
| Colombia.....                   | 1                 | 2    | 2    | 3    | 4    | 4    | 5    | 9    | 5    | 10   | 10   |
| Europe.....                     | 75                | 78   | 113  | 88   | 105  | 103  | 118  | 142  | 129  | 147  | 173  |
| Belgium.....                    | 3                 | 1    | -    | 2    | 2    | 4    | 2    | 2    | 3    | 5    | 7    |
| England.....                    | 27                | 25   | 36   | 35   | 40   | 29   | 26   | 40   | 31   | 32   | 48   |
| France.....                     | 5                 | 6    | 7    | 5    | 6    | 4    | 8    | 9    | 12   | 9    | 8    |
| Germany.....                    | 7                 | 11   | 12   | 11   | 18   | 17   | 27   | 21   | 21   | 34   | 25   |
| Greece.....                     | 7                 | 6    | 10   | 10   | 9    | 11   | 15   | 15   | 16   | 19   | 17   |
| Italy.....                      | 2                 | 4    | 4    | 3    | 10   | 4    | 6    | 7    | 8    | 5    | 13   |
| East Asia.....                  | 104               | 118  | 136  | 116  | 135  | 127  | 145  | 138  | 159  | 193  | 236  |
| Taiwan.....                     | 64                | 66   | 73   | 67   | 70   | 66   | 74   | 65   | 75   | 78   | 71   |
| China, Peoples Republic of..... | -                 | -    | -    | -    | 5    | 5    | 13   | 16   | 26   | 30   | 64   |
| China, unspecified.....         | -                 | -    | -    | 1    | 1    | -    | -    | 1    | 1    | 4    | 12   |
| Hong Kong.....                  | 10                | 10   | 12   | 13   | 13   | 8    | 10   | 10   | 10   | 7    | 9    |
| Japan.....                      | 3                 | 9    | 7    | 8    | 7    | 7    | 8    | 8    | 12   | 22   | 15   |
| Korea.....                      | 16                | 21   | 28   | 18   | 28   | 27   | 22   | 27   | 30   | 39   | 51   |
| Thailand.....                   | 3                 | 4    | 8    | 7    | 2    | 7    | 12   | 5    | 4    | 2    | 7    |
| West Asia.....                  | 75                | 84   | 103  | 117  | 114  | 134  | 163  | 139  | 157  | 194  | 166  |
| India.....                      | 32                | 32   | 40   | 38   | 40   | 41   | 58   | 48   | 59   | 76   | 63   |
| Iran.....                       | 17                | 22   | 25   | 41   | 35   | 44   | 39   | 38   | 38   | 63   | 39   |
| Iraq.....                       | 1                 | -    | 2    | 1    | 3    | 2    | 7    | 5    | 1    | 2    | 3    |
| Israel.....                     | 10                | 8    | 13   | 14   | 7    | 10   | 16   | 8    | 17   | 7    | 14   |
| Lebanon.....                    | 3                 | -    | 3    | 1    | 4    | 5    | 5    | 3    | 7    | 5    | 6    |
| Turkey.....                     | 2                 | 3    | 5    | 6    | 7    | 10   | 5    | 7    | 6    | 7    | 6    |
| Pakistan.....                   | 2                 | 8    | 4    | 6    | 1    | 5    | 8    | 4    | 2    | 5    | 9    |
| Australasia.....                | 11                | 13   | 12   | 23   | 15   | 18   | 21   | 23   | 16   | 20   | 28   |
| Australia.....                  | 2                 | 7    | 8    | 13   | 6    | 10   | 10   | 10   | 8    | 12   | 7    |
| Indonesia, Republic of.....     | 2                 | -    | -    | 1    | 1    | 1    | 3    | 2    | 3    | -    | 6    |
| New Zealand.....                | 1                 | 3    | 1    | 1    | 1    | 1    | 3    | 4    | 1    | 3    | 4    |
| Philippines.....                | 6                 | 3    | 3    | 7    | 7    | 6    | 4    | 7    | 4    | 5    | 11   |
| Africa.....                     | 22                | 26   | 23   | 42   | 57   | 43   | 57   | 64   | 62   | 69   | 75   |
| Egypt.....                      | 1                 | 2    | 5    | 6    | 9    | 5    | 7    | 14   | 9    | 7    | 9    |
| Nigeria.....                    | 9                 | 11   | 7    | 12   | 22   | 15   | 21   | 18   | 16   | 24   | 25   |
| Country unknown.....            | 235               | 177  | 108  | 103  | 114  | 105  | 140  | 148  | 123  | 44   | 42   |

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

| Country of citizenship          | Year of doctorate |      |      |      |      |      |      |      |      |      |      |
|---------------------------------|-------------------|------|------|------|------|------|------|------|------|------|------|
|                                 | 1981              | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
| <b>PERMANENT VISAS (con't.)</b> |                   |      |      |      |      |      |      |      |      |      |      |
| <b>ENGINEERING</b>              |                   |      |      |      |      |      |      |      |      |      |      |
| Total, foreign citizenship..... | 301               | 296  | 319  | 274  | 315  | 343  | 355  | 366  | 365  | 387  | 381  |
| Canada.....                     | 4                 | 2    | 5    | 3    | 2    | 2    | 3    | 8    | 9    | 9    | 14   |
| Mexico & Central America.....   | -                 | 3    | 2    | 6    | 3    | 3    | 4    | 7    | 3    | 7    | 3    |
| Mexico.....                     | -                 | 2    | 2    | 6    | 3    | 1    | 3    | 5    | 3    | 4    | 1    |
| Caribbean.....                  | -                 | 2    | 7    | -    | 3    | 1    | 1    | 1    | -    | 4    | -    |
| South America.....              | 5                 | 8    | 11   | 6    | 3    | 8    | 11   | 12   | 7    | 12   | 12   |
| Argentina.....                  | 1                 | 1    | 1    | -    | -    | -    | 1    | -    | -    | 2    | 5    |
| Brazil.....                     | -                 | 2    | 3    | 1    | -    | 2    | 5    | -    | 1    | 2    | 2    |
| Chile.....                      | -                 | 2    | 1    | -    | 1    | 1    | 2    | 1    | 1    | -    | -    |
| Colombia.....                   | -                 | 1    | 3    | 2    | -    | -    | -    | 5    | 2    | 1    | 1    |
| Europe.....                     | 25                | 20   | 27   | 22   | 26   | 39   | 32   | 28   | 30   | 31   | 32   |
| Belgium.....                    | -                 | -    | 2    | 1    | 1    | 2    | -    | 2    | -    | 1    | 1    |
| England.....                    | 6                 | 5    | 4    | 5    | 3    | 3    | 4    | 5    | 5    | 5    | 2    |
| France.....                     | 1                 | -    | 4    | 3    | 1    | 2    | 3    | 2    | 2    | 6    | 4    |
| Germany.....                    | 2                 | -    | -    | -    | 1    | 5    | 2    | 1    | 3    | 4    | -    |
| Greece.....                     | 9                 | 5    | 7    | 6    | 12   | 13   | 15   | 6    | 9    | 5    | 11   |
| Italy.....                      | 2                 | 1    | 1    | 1    | 1    | 1    | 4    | 2    | 3    | -    | 3    |
| East Asia.....                  | 82                | 89   | 97   | 99   | 120  | 116  | 115  | 112  | 105  | 127  | 165  |
| Taiwan.....                     | 57                | 56   | 68   | 59   | 88   | 78   | 77   | 71   | 67   | 68   | 87   |
| China, Peoples Republic of..... | -                 | -    | -    | 2    | 1    | 2    | 7    | 10   | 8    | 18   | 23   |
| China, unspecified.....         | 1                 | 1    | -    | -    | -    | -    | 2    | -    | 2    | 4    | 3    |
| Hong Kong.....                  | 2                 | 8    | 6    | 10   | 4    | 6    | 9    | 5    | 5    | 5    | 7    |
| Japan.....                      | 3                 | 2    | 4    | 2    | 1    | 4    | 2    | 2    | 1    | 1    | 5    |
| Korea.....                      | 12                | 15   | 17   | 20   | 19   | 19   | 14   | 22   | 22   | 30   | 36   |
| Thailand.....                   | 3                 | 3    | 1    | 4    | 4    | 3    | 1    | -    | -    | -    | 1    |
| West Asia.....                  | 59                | 58   | 103  | 82   | 91   | 93   | 98   | 105  | 122  | 149  | 114  |
| India.....                      | 35                | 25   | 35   | 29   | 34   | 29   | 29   | 36   | 35   | 41   | 42   |
| Iran.....                       | 11                | 13   | 42   | 32   | 37   | 33   | 40   | 39   | 55   | 61   | 41   |
| Iraq.....                       | -                 | 1    | 2    | -    | -    | -    | 1    | 3    | 1    | 1    | -    |
| Israel.....                     | 5                 | 3    | 9    | 2    | 2    | 6    | 4    | 6    | 2    | 3    | 4    |
| Lebanon.....                    | 2                 | 2    | 2    | 5    | 3    | 3    | 10   | 7    | 7    | 13   | 4    |
| Turkey.....                     | 3                 | 7    | 5    | 9    | 5    | 11   | 7    | 8    | 5    | 10   | 5    |
| Pakistan.....                   | 1                 | 3    | 4    | 3    | 5    | 4    | 4    | 1    | 3    | 2    | 2    |
| Australasia.....                | 3                 | 2    | 1    | 3    | 1    | 3    | 6    | 6    | 3    | 5    | 5    |
| Australia.....                  | 1                 | 2    | -    | 1    | 1    | 2    | 3    | 1    | -    | -    | 2    |
| Indonesia, Republic of.....     | 1                 | -    | 1    | 1    | -    | -    | 2    | 3    | 2    | 3    | 3    |
| New Zealand.....                | -                 | -    | -    | 1    | -    | -    | 1    | 2    | -    | 1    | -    |
| Philippines.....                | 1                 | -    | -    | -    | -    | 1    | -    | -    | 1    | 1    | -    |
| Africa.....                     | 5                 | 14   | 18   | 11   | 21   | 19   | 12   | 17   | 17   | 21   | 25   |
| Egypt.....                      | 4                 | 8    | 6    | 6    | 6    | 7    | 2    | 4    | 4    | 7    | 4    |
| Nigeria.....                    | 1                 | 3    | 5    | 3    | 8    | 5    | 5    | 7    | 3    | 5    | 9    |
| Country unknown.....            | 118               | 98   | 48   | 42   | 45   | 59   | 73   | 70   | 69   | 22   | 11   |

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

| Country of citizenship          | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                 | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| <b>TEMPORARY VISAS</b>          |                   |       |       |       |       |       |       |       |       |       |       |
| <b>SCIENCES</b>                 |                   |       |       |       |       |       |       |       |       |       |       |
| Total, foreign citizenship..... | 2,020             | 2,097 | 2,230 | 2,423 | 2,609 | 2,769 | 2,918 | 3,198 | 3,437 | 4,262 | 4,779 |
| Canada.....                     | 111               | 101   | 116   | 119   | 103   | 113   | 115   | 130   | 136   | 165   | 168   |
| Mexico & Central America.....   | 68                | 61    | 76    | 72    | 84    | 82    | 75    | 79    | 99    | 100   | 116   |
| Mexico.....                     | 50                | 52    | 58    | 55    | 70    | 67    | 58    | 55    | 79    | 66    | 85    |
| Caribbean.....                  | 14                | 10    | 7     | 14    | 10    | 10    | 12    | 12    | 16    | 17    | 30    |
| South America.....              | 192               | 160   | 171   | 198   | 178   | 197   | 199   | 189   | 190   | 201   | 242   |
| Argentina.....                  | 18                | 17    | 19    | 29    | 19    | 24    | 16    | 24    | 33    | 45    | 38    |
| Brazil.....                     | 92                | 62    | 71    | 80    | 64    | 76    | 70    | 64    | 62    | 57    | 76    |
| Chile.....                      | 18                | 20    | 22    | 26    | 30    | 26    | 30    | 32    | 33    | 32    | 38    |
| Colombia.....                   | 15                | 21    | 18    | 18    | 14    | 16    | 15    | 28    | 17    | 22    | 27    |
| Europe.....                     | 227               | 226   | 221   | 269   | 275   | 308   | 353   | 376   | 382   | 444   | 571   |
| Belgium.....                    | 12                | 7     | 8     | 9     | 8     | 12    | 8     | 13    | 7     | 14    | 27    |
| England.....                    | 57                | 49    | 41    | 53    | 57    | 35    | 59    | 64    | 51    | 53    | 67    |
| France.....                     | 12                | 22    | 12    | 26    | 11    | 17    | 24    | 22    | 21    | 28    | 38    |
| Germany.....                    | 20                | 19    | 28    | 26    | 23    | 35    | 40    | 46    | 64    | 73    | 82    |
| Greece.....                     | 29                | 31    | 24    | 33    | 29    | 43    | 47    | 45    | 51    | 49    | 79    |
| Italy.....                      | 13                | 14    | 19    | 22    | 28    | 36    | 40    | 49    | 33    | 44    | 56    |
| East Asia.....                  | 420               | 527   | 574   | 650   | 752   | 851   | 1,020 | 1,210 | 1,408 | 2,135 | 2,519 |
| Taiwan.....                     | 162               | 237   | 254   | 275   | 286   | 290   | 315   | 321   | 352   | 457   | 438   |
| China, Peoples Republic of..... | -                 | 3     | 8     | 33    | 84    | 138   | 193   | 329   | 428   | 698   | 1,117 |
| China, unspecified.....         | -                 | 1     | -     | 1     | 2     | -     | 6     | 3     | 5     | 100   | 92    |
| Hong Kong.....                  | 61                | 50    | 56    | 44    | 53    | 38    | 55    | 38    | 45    | 57    | 78    |
| Japan.....                      | 43                | 48    | 65    | 56    | 65    | 73    | 60    | 71    | 74    | 108   | 77    |
| Korea.....                      | 69                | 88    | 104   | 133   | 162   | 196   | 287   | 336   | 412   | 572   | 604   |
| Thailand.....                   | 57                | 63    | 53    | 65    | 69    | 75    | 63    | 67    | 56    | 88    | 63    |
| West Asia.....                  | 479               | 519   | 547   | 599   | 560   | 602   | 582   | 554   | 571   | 707   | 683   |
| India.....                      | 171               | 165   | 165   | 205   | 206   | 224   | 241   | 217   | 226   | 316   | 318   |
| Iran.....                       | 103               | 126   | 115   | 127   | 82    | 69    | 55    | 53    | 50    | 55    | 58    |
| Iraq.....                       | 22                | 22    | 34    | 19    | 32    | 21    | 26    | 23    | 15    | 11    | 10    |
| Israel.....                     | 51                | 49    | 51    | 42    | 37    | 45    | 31    | 30    | 32    | 48    | 45    |
| Lebanon.....                    | 8                 | 13    | 8     | 12    | 11    | 12    | 11    | 18    | 19    | 5     | 10    |
| Turkey.....                     | 17                | 22    | 27    | 25    | 21    | 25    | 38    | 32    | 20    | 40    | 27    |
| Pakistan.....                   | 16                | 22    | 21    | 21    | 27    | 31    | 34    | 28    | 44    | 45    | 49    |
| Australasia.....                | 107               | 112   | 124   | 105   | 104   | 109   | 90    | 108   | 124   | 128   | 132   |
| Australia.....                  | 30                | 35    | 34    | 33    | 29    | 18    | 27    | 27    | 31    | 30    | 19    |
| Indonesia, Republic of.....     | 33                | 27    | 38    | 25    | 26    | 30    | 26    | 29    | 37    | 39    | 39    |
| New Zealand.....                | 13                | 10    | 17    | 11    | 14    | 15    | 9     | 9     | 23    | 11    | 15    |
| Philippines.....                | 31                | 40    | 35    | 35    | 33    | 46    | 27    | 42    | 32    | 47    | 59    |
| Africa.....                     | 257               | 267   | 278   | 271   | 307   | 287   | 241   | 247   | 242   | 280   | 249   |
| Egypt.....                      | 37                | 43    | 45    | 39    | 50    | 42    | 51    | 54    | 51    | 70    | 45    |
| Nigeria.....                    | 89                | 71    | 70    | 52    | 66    | 49    | 52    | 48    | 31    | 35    | 34    |
| Country unknown.....            | 145               | 114   | 116   | 126   | 236   | 210   | 231   | 293   | 269   | 85    | 69    |

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**PAGE**

Table 5. Non-U.S. citizens awarded science and engineering doctorates, by country of citizenship and visa type: 1981-91--continued

| Country of citizenship          | Year of doctorate |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                 | 1981              | 1982  | 1983  | 1984  | 1985  | 1986  | 1987  | 1988  | 1989  | 1990  | 1991  |
| TEMPORARY VISAS (con't.)        |                   |       |       |       |       |       |       |       |       |       |       |
| ENGINEERING                     |                   |       |       |       |       |       |       |       |       |       |       |
| Total, foreign citizenship..... | 942               | 1,030 | 1,170 | 1,269 | 1,419 | 1,372 | 1,532 | 1,721 | 1,941 | 2,273 | 2,473 |
| Canada.....                     | 13                | 16    | 18    | 19    | 20    | 16    | 26    | 20    | 29    | 31    | 37    |
| Mexico & Central America.....   | 24                | 14    | 32    | 16    | 24    | 22    | 23    | 26    | 30    | 29    | 23    |
| Mexico.....                     | 21                | 11    | 27    | 13    | 21    | 19    | 18    | 22    | 25    | 21    | 20    |
| Caribbean.....                  | -                 | 1     | 2     | 5     | 4     | 5     | 5     | 1     | 5     | 3     | 3     |
| South America.....              | 69                | 57    | 65    | 56    | 50    | 55    | 68    | 57    | 66    | 72    | 69    |
| Argentina.....                  | 5                 | 4     | 7     | 10    | 11    | 10    | 8     | 6     | 6     | 10    | 7     |
| Brazil.....                     | 36                | 27    | 23    | 26    | 15    | 15    | 33    | 25    | 29    | 29    | 30    |
| Chile.....                      | 10                | 5     | 10    | 2     | 5     | 7     | 8     | 8     | 8     | 11    | 8     |
| Colombia.....                   | 3                 | 3     | 2     | 9     | 4     | 4     | 7     | 4     | 3     | 7     | 10    |
| Europe.....                     | 78                | 93    | 93    | 87    | 85    | 109   | 120   | 143   | 168   | 174   | 153   |
| Belgium.....                    | 5                 | 7     | 5     | 5     | 8     | 2     | 6     | 4     | 5     | 11    | 8     |
| England.....                    | 10                | 11    | 6     | 7     | 3     | 9     | 5     | 6     | 9     | 9     | 8     |
| France.....                     | 7                 | 12    | 10    | 14    | 10    | 11    | 13    | 20    | 16    | 21    | 15    |
| Germany.....                    | 6                 | 6     | 3     | 2     | 6     | 5     | 5     | 10    | 14    | 11    | 7     |
| Greece.....                     | 19                | 18    | 25    | 29    | 18    | 36    | 46    | 52    | 61    | 52    | 51    |
| Italy.....                      | -                 | 4     | 6     | 9     | 6     | 7     | 6     | 5     | 12    | 14    | 9     |
| East Asia.....                  | 280               | 333   | 384   | 483   | 546   | 566   | 688   | 777   | 883   | 1,137 | 1,378 |
| Taiwan.....                     | 161               | 201   | 209   | 263   | 299   | 273   | 321   | 329   | 360   | 406   | 486   |
| China, Peoples Republic of..... | -                 | -     | 5     | 25    | 47    | 53    | 77    | 123   | 148   | 271   | 392   |
| China, unspecified.....         | -                 | 1     | -     | -     | -     | 2     | 1     | 1     | 6     | 41    | 34    |
| Hong Kong.....                  | 27                | 24    | 24    | 20    | 24    | 21    | 13    | 28    | 33    | 25    | 21    |
| Japan.....                      | 28                | 29    | 27    | 36    | 24    | 24    | 13    | 22    | 18    | 16    | 23    |
| Korea.....                      | 38                | 48    | 87    | 95    | 114   | 156   | 224   | 235   | 286   | 329   | 376   |
| Thailand.....                   | 20                | 22    | 26    | 32    | 21    | 23    | 19    | 24    | 16    | 21    | 17    |
| West Asia.....                  | 313               | 354   | 388   | 382   | 423   | 377   | 379   | 427   | 456   | 588   | 611   |
| India.....                      | 141               | 135   | 143   | 165   | 178   | 175   | 175   | 219   | 217   | 272   | 296   |
| Iran.....                       | 63                | 86    | 96    | 87    | 79    | 67    | 48    | 42    | 55    | 78    | 73    |
| Iraq.....                       | 4                 | 3     | 5     | 6     | 6     | 4     | 9     | 5     | 8     | 13    | 8     |
| Israel.....                     | 28                | 22    | 36    | 20    | 20    | 18    | 15    | 17    | 17    | 16    | 22    |
| Lebanon.....                    | 6                 | 6     | 11    | 10    | 8     | 8     | 17    | 11    | 18    | 22    | 33    |
| Turkey.....                     | 27                | 36    | 31    | 32    | 51    | 38    | 36    | 34    | 47    | 48    | 56    |
| Pakistan.....                   | 7                 | 10    | 9     | 7     | 13    | 19    | 13    | 19    | 12    | 24    | 30    |
| Australasia.....                | 8                 | 19    | 22    | 26    | 27    | 18    | 18    | 18    | 23    | 20    | 35    |
| Australia.....                  | 3                 | 2     | 8     | 4     | 3     | 4     | 2     | 1     | 2     | 3     | 5     |
| Indonesia, Republic of.....     | 3                 | 7     | 8     | 10    | 15    | 9     | 11    | 8     | 10    | 11    | 14    |
| New Zealand.....                | -                 | 6     | -     | 3     | 4     | 1     | 1     | 2     | 3     | 1     | 2     |
| Philippines.....                | 2                 | 4     | 6     | 9     | 5     | 4     | 4     | 7     | 8     | 5     | 14    |
| Africa.....                     | 99                | 84    | 107   | 128   | 116   | 99    | 95    | 121   | 123   | 166   | 124   |
| Egypt.....                      | 37                | 30    | 37    | 39    | 42    | 46    | 38    | 43    | 45    | 75    | 51    |
| Nigeria.....                    | 30                | 13    | 24    | 27    | 21    | 10    | 11    | 14    | 8     | 18    | 9     |
| Country unknown.....            | 58                | 59    | 59    | 67    | 124   | 105   | 110   | 131   | 158   | 53    | 40    |

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991

| Institution(1)                  | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                |      | Total<br>all<br>flds |
|---------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|------|----------------------|
|                                 | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(2) |      |      | Non-<br>S&E(3) |      |                      |
|                                 |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                | Mech |                      |
| California, Univ of-Berkeley    | 569          | 94                | 39            | 55             | 14                        | 54   | 17                   | 107              | 13          | 94          | 112        | 14    | 157            | 18   | 39   | 37             | 209  | 778                  |
| Illinois, U, Urbana-Champaign   | 527          | 98                | 47            | 51             | 11                        | 17   | 33                   | 132              | 49          | 83          | 58         | 29    | 149            | 12   | 56   | 19             | 211  | 738                  |
| Wisconsin, Univ of-Madison      | 481          | 67                | 34            | 33             | 16                        | 26   | 18                   | 154              | 48          | 106         | 80         | 26    | 94             | 15   | 18   | 18             | 225  | 706                  |
| Minnesota, Univ of-Minneapolis  | 473          | 52                | 16            | 36             | 9                         | 29   | 19                   | 133              | 58          | 75          | 87         | 58    | 86             | 19   | 19   | 19             | 231  | 704                  |
| Massachusetts Inst Technology   | 466          | 86                | 47            | 39             | 28                        | 29   | 7                    | 38               | -           | 38          | 50         | 3     | 225            | 30   | 24   | 35             | 31   | 497                  |
| Stanford University/CA          | 443          | 60                | 34            | 26             | 28                        | 13   | 27                   | 48               | 2           | 46          | 50         | 18    | 199            | 10   | 61   | 47             | 113  | 556                  |
| Michigan, University of         | 441          | 62                | 25            | 37             | 13                        | 17   | 14                   | 76               | 8           | 68          | 62         | 37    | 160            | 11   | 24   | 20             | 218  | 659                  |
| Texas, University of-Austin     | 423          | 77                | 42            | 35             | 17                        | 10   | 28                   | 50               | -           | 50          | 58         | 40    | 143            | 29   | 21   | 8              | 287  | 710                  |
| Cornell University/NY           | 415          | 61                | 41            | 20             | 6                         | 15   | 11                   | 119              | 41          | 78          | 82         | 12    | 109            | 5    | 25   | 22             | 85   | 500                  |
| California, Univ of-Los Angeles | 391          | 63                | 37            | 26             | 20                        | 24   | 23                   | 76               | -           | 76          | 82         | 32    | 71             | 4    | 20   | 16             | 181  | 572                  |
| Ohio State University           | 384          | 56                | 17            | 39             | 4                         | 19   | 23                   | 104              | 19          | 85          | 64         | 32    | 82             | 4    | 20   | 15             | 255  | 639                  |
| Pennsylvania State University   | 346          | 59                | 21            | 38             | 28                        | 14   | 12                   | 53               | 15          | 38          | 44         | 31    | 105            | 12   | 18   | 17             | 127  | 473                  |
| Purdue University/IN            | 341          | 51                | 9             | 42             | 7                         | 15   | 13                   | 74               | 18          | 56          | 38         | 15    | 128            | 20   | 42   | 16             | 89   | 430                  |
| Texas A&M University            | 340          | 45                | 6             | 39             | 22                        | 5    | 5                    | 118              | 65          | 53          | 25         | 19    | 101            | 14   | 19   | 18             | 105  | 445                  |
| Washington, University of       | 319          | 56                | 18            | 38             | 31                        | 11   | 14                   | 84               | 17          | 67          | 34         | 16    | 73             | 14   | 20   | 5              | 140  | 459                  |
| California, University of-Davis | 317          | 44                | 8             | 36             | 9                         | 8    | 6                    | 182              | 21          | 161         | 20         | 2     | 46             | 3    | 4    | 9              | 30   | 347                  |
| Harvard University/MA           | 294          | 56                | 32            | 24             | 7                         | 19   | 9                    | 88               | -           | 88          | 100        | 13    | 2              | -    | -    | -              | 240  | 534                  |
| Maryland, University of         | 290          | 54                | 34            | 20             | 7                         | 24   | 15                   | 55               | 13          | 42          | 42         | 36    | 57             | 6    | 26   | 7              | 163  | 453                  |
| Florida, University of          | 288          | 43                | 9             | 34             | 4                         | 5    | 6                    | 83               | 34          | 49          | 38         | 27    | 82             | 9    | 27   | 12             | 80   | 368                  |
| Arizona, University of          | 286          | 64                | 35            | 29             | 27                        | 10   | 7                    | 84               | 27          | 57          | 29         | 13    | 52             | 7    | 11   | 7              | 98   | 384                  |
| Pennsylvania, University of     | 277          | 34                | 18            | 16             | 3                         | 9    | 13                   | 56               | -           | 56          | 96         | 14    | 52             | 8    | 4    | 6              | 172  | 449                  |
| Michigan State University       | 252          | 41                | 14            | 27             | 2                         | 10   | 3                    | 93               | 39          | 54          | 45         | 30    | 28             | 1    | 9    | 9              | 138  | 390                  |
| Columbia University/NY          | 238          | 35                | 22            | 13             | 14                        | 12   | 8                    | 34               | -           | 34          | 47         | 32    | 56             | 2    | 15   | 13             | 160  | 398                  |
| Iowa State University           | 237          | 69                | 16            | 53             | 6                         | 14   | 7                    | 64               | 28          | 36          | 25         | 8     | 44             | 2    | 3    | 21             | 60   | 297                  |
| Northwestern University/IL      | 230          | 20                | 7             | 13             | 6                         | 10   | 8                    | 42               | -           | 42          | 27         | 27    | 90             | 6    | 13   | 16             | 86   | 316                  |
| CUNY-Grad Sch & Univ Ctr        | 229          | 43                | 15            | 28             | 1                         | 11   | 9                    | 37               | -           | 37          | 51         | 52    | 25             | 7    | 11   | 3              | 97   | 326                  |
| VA Poly Inst & State Univ       | 229          | 17                | 4             | 13             | 9                         | 12   | 3                    | 53               | 30          | 23          | 21         | 10    | 104            | 4    | 13   | 31             | 107  | 336                  |
| NC State University-Raleigh     | 227          | 19                | 6             | 13             | 3                         | 12   | 1                    | 76               | 43          | 33          | 14         | 7     | 95             | 7    | 17   | 16             | 29   | 256                  |
| Colorado, Univ of-Boulder       | 223          | 49                | 26            | 23             | 18                        | 16   | 10                   | 27               | -           | 27          | 29         | 14    | 60             | 8    | 16   | 6              | 75   | 298                  |
| Southern Calif, University of   | 216          | 26                | 5             | 21             | 1                         | 1    | 12                   | 25               | -           | 25          | 33         | 40    | 78             | 5    | 34   | 2              | 206  | 422                  |
| Massachusetts, Univ of-Amherst  | 212          | 34                | 11            | 23             | 6                         | 11   | 15                   | 40               | 13          | 27          | 41         | 19    | 46             | 13   | 7    | 6              | 188  | 400                  |
| Yale University/CT              | 202          | 39                | 20            | 19             | 4                         | 8    | 6                    | 66               | 5           | 61          | 52         | 13    | 14             | 3    | 6    | 4              | 142  | 344                  |
| Rutgers University/NJ           | 201          | 17                | 4             | 13             | 8                         | 12   | 3                    | 66               | 19          | 47          | 27         | 10    | 58             | 9    | 10   | 9              | 103  | 304                  |
| Chicago, University of/IL       | 200          | 45                | 22            | 23             | 7                         | 14   | 2                    | 41               | -           | 41          | 75         | 16    | -              | -    | -    | -              | 117  | 317                  |
| Johns Hopkins University/MD     | 199          | 24                | 15            | 9              | 6                         | 10   | 2                    | 75               | -           | 75          | 35         | 7     | 40             | 5    | 8    | 3              | 86   | 285                  |
| NC Carolina, U of-Chapel Hill   | 189          | 46                | 10            | 36             | 8                         | 11   | 7                    | 61               | -           | 61          | 26         | 26    | 4              | -    | -    | -              | 147  | 336                  |
| California, Univ of-San Diego   | 189          | 32                | 13            | 19             | 24                        | 18   | 5                    | 36               | -           | 36          | 32         | 16    | 26             | 1    | 11   | -              | 21   | 210                  |
| SUNY at Buffalo                 | 184          | 30                | 5             | 25             | 1                         | 8    | 4                    | 38               | -           | 38          | 25         | 29    | 49             | 10   | 8    | 11             | 88   | 272                  |
| SUNY at Stony Brook             | 182          | 45                | 21            | 24             | 8                         | 18   | 2                    | 52               | -           | 52          | 25         | 16    | 16             | -    | 2    | 7              | 64   | 246                  |
| Princeton University/NJ         | 179          | 33                | 23            | 10             | 15                        | 10   | 11                   | 19               | -           | 19          | 42         | 7     | 42             | 12   | 14   | 4              | 65   | 244                  |
| Colorado State University       | 173          | 23                | 1             | 22             | 8                         | 3    | -                    | 67               | 31          | 36          | 15         | 15    | 42             | 1    | 6    | 5              | 25   | 198                  |
| New York University             | 170          | 19                | 9             | 10             | 1                         | 20   | 17                   | 31               | -           | 31          | 37         | 44    | 1              | -    | -    | -              | 257  | 427                  |
| Virginia, University of         | 167          | 24                | 9             | 15             | 4                         | 19   | 2                    | 30               | -           | 30          | 26         | 27    | 35             | 8    | 7    | 2              | 125  | 292                  |
| Georgia, University of          | 165          | 15                | 3             | 12             | 3                         | 3    | -                    | 89               | 30          | 59          | 26         | 29    | -              | -    | -    | -              | 167  | 332                  |
| Connecticut, University of      | 160          | 24                | 8             | 16             | 1                         | 12   | 5                    | 43               | -           | 43          | 34         | 19    | 22             | 3    | 3    | 1              | 68   | 228                  |
| Pittsburgh, University of       | 159          | 30                | 4             | 26             | 2                         | 3    | 6                    | 30               | -           | 30          | 32         | 26    | 30             | 9    | 4    | 4              | 182  | 341                  |
| Iowa, University of             | 156          | 27                | 9             | 18             | 4                         | 12   | 6                    | 41               | -           | 41          | 14         | 7     | 45             | 2    | 7    | 16             | 203  | 359                  |
| California Inst of Technology   | 154          | 49                | 32            | 17             | 14                        | 9    | 6                    | 22               | -           | 22          | 4          | -     | 50             | 11   | 11   | 6              | -    | 154                  |
| Duke University/NC              | 153          | 21                | 7             | 14             | 4                         | 11   | 8                    | 45               | 2           | 43          | 26         | 8     | 30             | -    | 11   | 6              | 51   | 204                  |
| Georgia Inst of Technology      | 149          | 19                | 11            | 8              | 5                         | 1    | 12                   | 6                | -           | 6           | -          | 6     | 100            | 8    | 30   | 17             | 4    | 153                  |

See footnotes at end of table.

50

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

| Institution(1)               | Major field |                   |           |            |                     |      |                |                  |          |          |         |       |                |      |      |      |            | Total all flds |
|------------------------------|-------------|-------------------|-----------|------------|---------------------|------|----------------|------------------|----------|----------|---------|-------|----------------|------|------|------|------------|----------------|
|                              | Total S&E   | Physical sciences |           |            | Earth/ atmos/ ocean | Math | Comp/ info sci | Agric & biol sci |          |          | Soc sci | Psych | Engineering(2) |      |      |      | Non-S&E(3) |                |
|                              |             | Sub-total         | Phys&astr | Chem-istry |                     |      |                | Sub-total        | Agri sci | Biol sci |         |       | Sub-total      | Chem | Elec | Mech |            |                |
| Indiana Univ-Bloomington     | 145         | 40                | 16        | 24         | 6                   | 3    | 2              | 34               | -        | 34       | 46      | 14    | -              | -    | -    | -    | 215        | 360            |
| Illinois, Univ of-Chicago    | 145         | 22                | 9         | 13         | 2                   | 5    | 6              | 41               | -        | 41       | 20      | 11    | 38             | 3    | 8    | 17   | 55         | 200            |
| Cincinnati, University of/OH | 144         | 34                | 6         | 28         | 2                   | 1    | 4              | 27               | -        | 27       | 9       | 16    | 51             | 8    | 8    | 12   | 82         | 226            |
| Utah, University of          | 144         | 28                | 5         | 23         | 8                   | 6    | 7              | 19               | -        | 19       | 18      | 12    | 46             | 3    | 4    | 8    | 55         | 199            |
| Boston University/MA         | 143         | 20                | 15        | 5          | 2                   | 7    | 3              | 51               | -        | 51       | 29      | 24    | 7              | -    | 1    | -    | 112        | 255            |
| Carnegie Mellon Univ/PA      | 143         | 16                | 10        | 6          | -                   | 9    | 22             | 8                | -        | 8        | 12      | 6     | 70             | 9    | 21   | 3    | 32         | 175            |
| Tennessee, Univ of-Knoxville | 141         | 20                | 7         | 13         | 2                   | 3    | 1              | 35               | 8        | 27       | 19      | 23    | 38             | 6    | 7    | 5    | 75         | 216            |
| Arizona State University     | 141         | 27                | 12        | 15         | 8                   | 3    | 6              | 11               | -        | 11       | 22      | 23    | 41             | 3    | 15   | 7    | 85         | 226            |
| Calif, Univ of-Santa Barbara | 141         | 30                | 14        | 16         | 11                  | 5    | 2              | 21               | -        | 21       | 31      | 16    | 25             | 5    | 6    | 4    | 45         | 186            |
| Case Western Reserve/OH      | 136         | 29                | 10        | 19         | -                   | 3    | 4              | 27               | -        | 27       | 9       | 9     | 55             | 5    | 6    | 8    | 38         | 174            |
| LA St Univ & A&M College     | 136         | 26                | 7         | 19         | 6                   | 6    | 5              | 44               | 22       | 22       | 15      | 14    | 20             | 7    | 2    | 1    | 56         | 192            |
| Rochester, Univ of/NY        | 134         | 38                | 20        | 18         | 3                   | 8    | 6              | 30               | -        | 30       | 17      | 14    | 18             | 5    | 10   | -    | 60         | 194            |
| Washington State University  | 132         | 8                 | 5         | 3          | 6                   | 4    | 2              | 49               | 21       | 28       | 24      | 16    | 23             | 5    | 4    | 4    | 40         | 172            |
| Oregon State University      | 132         | 15                | 1         | 14         | 14                  | 4    | 3              | 58               | 37       | 21       | 8       | 1     | 29             | -    | 11   | 9    | 37         | 169            |
| Rensselaer Poly Inst/NY      | 125         | 21                | 9         | 12         | 5                   | 4    | 6              | 4                | -        | 4        | 6       | -     | 79             | 10   | 20   | 18   | 11         | 136            |
| Missouri, Univ of-Columbia   | 123         | 12                | 6         | 6          | 3                   | 5    | -              | 39               | 19       | 20       | 19      | 31    | 14             | 3    | 3    | 4    | 89         | 212            |
| South Carolina, Univ of      | 121         | 23                | 3         | 20         | 21                  | 6    | 2              | 31               | -        | 31       | 13      | 13    | 12             | 3    | 4    | 1    | 125        | 246            |
| Kentucky, University of      | 120         | 9                 | 2         | 7          | 2                   | 6    | -              | 48               | 19       | 29       | 25      | 14    | 16             | -    | 7    | 3    | 62         | 182            |
| Brown University/RI          | 117         | 22                | 11        | 11         | 10                  | 16   | 11             | 23               | -        | 23       | 22      | 4     | 9              | 2    | 2    | 2    | 56         | 173            |
| Vanderbilt University/TN     | 116         | 14                | 7         | 7          | -                   | 5    | 4              | 32               | -        | 32       | 8       | 30    | 23             | 2    | 7    | 3    | 39         | 155            |
| Washington University/MO     | 115         | 19                | 9         | 10         | 6                   | 9    | 3              | 35               | -        | 35       | 14      | 8     | 21             | 3    | 5    | 1    | 23         | 138            |
| Kansas, University of        | 114         | 15                | 2         | 13         | 2                   | 1    | 3              | 32               | -        | 32       | 12      | 33    | 16             | 2    | -    | 2    | 108        | 222            |
| Syracuse University/NY       | 112         | 15                | 7         | 8          | 1                   | 3    | 6              | 11               | -        | 11       | 24      | 12    | 40             | 8    | 17   | 1    | 83         | 195            |
| Wayne State University/MI    | 103         | 16                | -         | 16         | -                   | 5    | 3              | 27               | -        | 27       | 7       | 29    | 16             | 2    | 3    | 2    | 99         | 202            |
| Florida State University     | 101         | 10                | 3         | 7          | 8                   | 6    | 7              | 16               | -        | 16       | 33      | 19    | 2              | 2    | -    | -    | 156        | 257            |
| California, Univ of-Irvine   | 101         | 22                | 10        | 12         | -                   | 1    | 16             | 19               | -        | 19       | 14      | 7     | 22             | -    | 14   | 4    | 26         | 127            |
| Hawaii, University of        | 101         | 6                 | 4         | 2          | 8                   | 2    | 1              | 35               | 8        | 27       | 39      | 8     | 2              | -    | 2    | -    | 42         | 143            |
| Delaware, University of      | 100         | 21                | 11        | 10         | 8                   | 3    | 1              | 8                | 1        | 7        | 15      | 7     | 37             | 13   | 6    | 9    | 33         | 133            |
| Oklahoma State University    | 100         | 10                | 3         | 7          | 1                   | -    | 2              | 22               | 10       | 12       | 15      | 24    | 26             | 6    | 4    | 9    | 106        | 206            |
| Temple University/PA         | 97          | 11                | 8         | 3          | -                   | 9    | 1              | 20               | -        | 20       | 16      | 40    | -              | -    | -    | -    | 155        | 252            |
| Nebraska, Univ of-Lincoln    | 97          | 5                 | 2         | 3          | 2                   | 3    | 5              | 47               | 27       | 20       | 11      | 18    | 6              | -    | -    | 1    | 118        | 215            |
| U S Internatl Univ/CA        | 94          | -                 | -         | -          | -                   | -    | -              | -                | -        | -        | -       | 94    | -              | -    | -    | -    | 61         | 155            |
| George Washington Univ/DC    | 88          | -                 | -         | -          | 2                   | 1    | 7              | 12               | -        | 12       | 17      | 11    | 38             | -    | 6    | 2    | 61         | 149            |
| New Mexico, University of    | 88          | 19                | 10        | 9          | 4                   | 5    | 2              | 17               | -        | 17       | 8       | 16    | 17             | -    | 3    | 4    | 63         | 151            |
| Auburn University/AL         | 87          | 11                | 4         | 7          | 1                   | 6    | 2              | 26               | 14       | 12       | 6       | 13    | 22             | 5    | 3    | 4    | 38         | 125            |
| Houston, University of/TX    | 87          | 19                | 9         | 10         | 4                   | 1    | 4              | 9                | -        | 9        | 5       | 24    | 21             | 6    | 4    | 4    | 60         | 147            |
| Rice University/TX           | 86          | 17                | 6         | 11         | 5                   | 12   | 4              | 2                | -        | 2        | 8       | 5     | 33             | 10   | 7    | 9    | 18         | 104            |
| Oklahoma, University of      | 84          | 9                 | 2         | 7          | 9                   | 2    | 5              | 18               | -        | 18       | 7       | 10    | 24             | 5    | 5    | 6    | 61         | 145            |
| Rhode Island, University of  | 83          | 10                | 2         | 8          | 15                  | 3    | -              | 22               | 5        | 17       | 2       | 14    | 17             | 1    | 6    | 6    | 11         | 94             |
| Lehigh University/PA         | 83          | 14                | 7         | 7          | 1                   | 5    | -              | 5                | -        | 5        | 2       | 7     | 49             | 12   | 5    | 6    | 18         | 101            |
| Notre Dame, University of/IN | 83          | 25                | 9         | 16         | -                   | 8    | -              | 10               | -        | 10       | 8       | 7     | 25             | 5    | 9    | 5    | 18         | 101            |
| Kansas State University      | 82          | 12                | 5         | 7          | -                   | 6    | 2              | 43               | 27       | 16       | 4       | 2     | 13             | 1    | 1    | 2    | 54         | 136            |
| Oregon, University of        | 81          | 17                | 7         | 10         | 1                   | 3    | 1              | 18               | -        | 18       | 20      | 21    | -              | -    | -    | -    | 115        | 196            |
| Texas Tech University        | 80          | 10                | 4         | 6          | 6                   | 3    | 2              | 14               | 6        | 8        | 3       | 24    | 18             | 1    | 5    | -    | 64         | 144            |
| Calif, Univ of-Riverside     | 77          | 23                | 13        | 10         | 1                   | 7    | -              | 33               | 14       | 19       | 6       | 7     | -              | -    | -    | -    | 13         | 90             |
| Illinois Inst Technology     | 76          | 5                 | 3         | 2          | -                   | 1    | 19             | 3                | -        | 3        | -       | 16    | 32             | 6    | 12   | 2    | 5          | 81             |
| Miami, University of/FL      | 73          | 7                 | 3         | 4          | 7                   | 2    | -              | 21               | -        | 21       | 5       | 21    | 10             | -    | 2    | 4    | 39         | 112            |
| Akron, University of/OH      | 71          | 30                | 2         | 28         | -                   | -    | -              | 5                | -        | 5        | 8       | 14    | 14             | 1    | -    | 3    | 29         | 100            |
| VA Commonwealth University   | 70          | 12                | 1         | 11         | -                   | -    | 2              | 38               | -        | 38       | 2       | 16    | -              | -    | -    | -    | 23         | 93             |
| Calif Sch Prof Psy-Alhambra  | 68          | -                 | -         | -          | -                   | -    | -              | -                | -        | -        | -       | 68    | -              | -    | -    | -    | -          | 68             |

See footnotes at end of table.

51

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

| Institution(1)                 | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>flds |      |
|--------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|----------------------|------|
|                                | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(2) |      |      | Non-<br>S&E(3) |                      |      |
|                                |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                      | Mech |
| West Virginia University       | 66           | 3                 | -             | 3              | 1                         | -    | -                    | 23               | 10          | 13          | 6          | 10    | 23             | 3    | 3    | 7              | 49                   | 115  |
| Missouri, Univ of-Rolla        | 63           | 13                | 6             | 7              | 1                         | -    | 3                    | -                | -           | -           | -          | -     | 46             | 3    | 6    | 8              | -                    | 63   |
| Calif, Univ of-Santa Cruz      | 62           | 16                | 8             | 8              | 14                        | 3    | 2                    | 14               | 3           | 11          | 7          | 6     | -              | -    | -    | -              | 11                   | 73   |
| Brandeis University/MA         | 61           | 11                | 4             | 7              | -                         | 6    | 2                    | 16               | -           | 16          | 22         | 4     | -              | -    | -    | -              | 30                   | 91   |
| Emory University/GA            | 61           | 14                | -             | 14             | -                         | 2    | -                    | 31               | -           | 31          | 5          | 9     | -              | -    | -    | -              | 51                   | 112  |
| Polytechnic University/NY      | 60           | 15                | 1             | 14             | -                         | 4    | 7                    | -                | -           | -           | -          | -     | 34             | 4    | 17   | 1              | -                    | 60   |
| Calif, Univ of-San Francisco   | 60           | 17                | -             | 17             | -                         | -    | 2                    | 25               | -           | 25          | 10         | 3     | 3              | -    | -    | -              | 20                   | 80   |
| Tufts University/MA            | 59           | 13                | 4             | 9              | -                         | 1    | -                    | 21               | -           | 21          | 13         | 5     | 6              | 4    | 1    | -              | 7                    | 66   |
| SUNY at Albany                 | 59           | 6                 | 3             | 3              | 3                         | 3    | -                    | 8                | -           | 8           | 19         | 20    | -              | -    | -    | -              | 52                   | 111  |
| Wisconsin, Univ of-Milwaukee   | 59           | 5                 | 3             | 2              | 1                         | 5    | -                    | 3                | -           | 3           | 20         | 11    | 14             | -    | 4    | 3              | 28                   | 87   |
| Northeastern University/MA     | 58           | 13                | 6             | 7              | -                         | 6    | -                    | 7                | -           | 7           | 11         | 3     | 18             | 3    | 6    | 5              | 7                    | 65   |
| Southern Illinois Univ         | 58           | 4                 | 2             | 2              | 3                         | 3    | -                    | 15               | 2           | 13          | 12         | 17    | 4              | -    | -    | -              | 104                  | 162  |
| Clemson University/SC          | 58           | 12                | -             | 12             | 1                         | 2    | -                    | 11               | 5           | 6           | 4          | -     | 28             | 2    | 5    | 3              | 15                   | 73   |
| Georgetown University/DC       | 56           | 5                 | 1             | 4              | -                         | -    | -                    | 21               | -           | 21          | 29         | 1     | -              | -    | -    | -              | 17                   | 73   |
| Calif Sch Prof Psych-Alameda   | 56           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 56    | -              | -    | -    | -              | -                    | 56   |
| Tulane University of LA        | 55           | 5                 | -             | 5              | -                         | 8    | 2                    | 16               | -           | 16          | 7          | 12    | 5              | 2    | 2    | -              | 36                   | 91   |
| Arkansas, Univ of-Fayetteville | 54           | 12                | 8             | 4              | -                         | -    | -                    | 24               | 11          | 13          | -          | 10    | 8              | -    | 2    | -              | 64                   | 118  |
| North Texas, University of     | 53           | 8                 | 2             | 6              | -                         | 3    | 3                    | 10               | 1           | 9           | 7          | 21    | 1              | -    | -    | -              | 118                  | 171  |
| Calif Sch Prof Psych-San Diego | 53           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 53    | -              | -    | -    | -              | -                    | 53   |
| Brigham Young University/UT    | 52           | 12                | 2             | 10             | -                         | -    | -                    | 8                | 3           | 5           | 6          | 20    | 6              | 4    | 1    | -              | 42                   | 94   |
| Georgia State University       | 51           | 5                 | 4             | 1              | -                         | -    | -                    | 7                | -           | 7           | 7          | 32    | -              | -    | -    | -              | 81                   | 132  |
| Kent State University/OH       | 50           | 6                 | 5             | 1              | 2                         | 4    | -                    | 8                | -           | 8           | 5          | 24    | 1              | -    | -    | -              | 64                   | 114  |
| Alabama, Univ of-Birmingham    | 50           | 3                 | 3             | -              | -                         | -    | 2                    | 30               | -           | 30          | -          | 11    | 4              | -    | -    | -              | 45                   | 95   |
| Mississippi State University   | 50           | 1                 | -             | 1              | -                         | -    | 1                    | 29               | 22          | 7           | 6          | 3     | 10             | -    | 5    | -              | 54                   | 104  |
| Wyoming, University of         | 50           | 7                 | -             | 7              | 6                         | 9    | -                    | 17               | 6           | 11          | 1          | 5     | 5              | 1    | 2    | 1              | 17                   | 67   |
| New Mexico State University    | 50           | 11                | 3             | 8              | 1                         | 3    | 3                    | 19               | 11          | 8           | -          | 8     | 5              | -    | 2    | -              | 13                   | 63   |
| Utah State University          | 50           | -                 | -             | -              | 1                         | -    | -                    | 28               | 22          | 6           | 5          | 9     | 7              | -    | -    | -              | 10                   | 60   |
| Drexel University/PA           | 49           | 4                 | -             | 4              | 7                         | 1    | -                    | 3                | -           | 3           | -          | -     | 34             | 2    | 12   | 12             | 6                    | 55   |
| Southern Methodist Univ/TX     | 49           | -                 | -             | -              | 6                         | 2    | 7                    | 1                | -           | 1           | 5          | -     | 28             | -    | 14   | 5              | -                    | 49   |
| Calif Sch Prof Psych-Fresno    | 49           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 49    | -              | -    | -    | -              | -                    | 49   |
| Howard University/DC           | 47           | 7                 | 2             | 5              | -                         | -    | -                    | 8                | -           | 8           | 17         | 10    | 5              | -    | 3    | 2              | 20                   | 67   |
| Texas, Univ of-Arlington       | 47           | 8                 | 3             | 5              | -                         | 4    | 2                    | 1                | -           | 1           | 3          | 2     | 27             | -    | 14   | 4              | 21                   | 68   |
| Stevens Inst Technology/NJ     | 45           | 8                 | 4             | 4              | -                         | 2    | 7                    | -                | -           | -           | 1          | 3     | 24             | 1    | 2    | 2              | -                    | 45   |
| Loyola Univ of Chicago/IL      | 44           | 4                 | -             | 4              | -                         | -    | -                    | 12               | -           | 12          | 4          | 24    | -              | -    | -    | -              | 53                   | 97   |
| South Florida, University of   | 44           | 4                 | 1             | 3              | 2                         | 5    | -                    | 10               | -           | 10          | -          | 13    | 10             | 2    | 3    | -              | 35                   | 79   |
| Southern Mississippi, Univ of  | 44           | 14                | -             | 14             | -                         | -    | -                    | 2                | -           | 2           | -          | 27    | 1              | -    | -    | -              | 63                   | 107  |
| Texas, University of-Dallas    | 44           | 11                | 8             | 3              | 5                         | 3    | 7                    | 5                | -           | 5           | 8          | 4     | 1              | -    | -    | -              | 13                   | 57   |
| SUNY at Binghamton             | 43           | 6                 | -             | 6              | 1                         | 2    | 2                    | 3                | -           | 3           | 15         | 10    | 4              | -    | -    | -              | 24                   | 67   |
| St Louis University/MO         | 42           | -                 | -             | -              | 5                         | 2    | -                    | 13               | -           | 13          | 8          | 14    | -              | -    | -    | -              | 70                   | 112  |
| Vermont, University of         | 41           | 5                 | -             | 5              | -                         | -    | -                    | 21               | 1           | 20          | -          | 8     | 7              | -    | 4    | 1              | 7                    | 48   |
| Hofstra University/NY          | 41           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 41    | -              | -    | -    | -              | 23                   | 64   |
| Catholic University of Amer/DC | 40           | 9                 | 4             | 5              | -                         | -    | -                    | 2                | -           | 2           | 6          | 16    | 7              | -    | 2    | 2              | 58                   | 98   |
| Alabama, University of         | 40           | 10                | 3             | 7              | 1                         | 2    | -                    | 4                | -           | 4           | 2          | 9     | 12             | -    | 1    | 7              | 104                  | 144  |
| Miami University/OH            | 39           | 8                 | -             | 8              | 3                         | -    | -                    | 13               | -           | 13          | -          | 15    | -              | -    | -    | -              | 27                   | 66   |
| Denver, University of/CO       | 39           | 2                 | 2             | -              | -                         | -    | -                    | 1                | -           | 1           | 18         | 18    | -              | -    | -    | -              | 42                   | 81   |
| Dartmouth College/NH           | 37           | 9                 | 2             | 7              | 3                         | -    | -                    | 16               | -           | 16          | -          | 1     | 8              | -    | 1    | 1              | -                    | 37   |
| Boston College/MA              | 37           | 12                | 7             | 5              | -                         | -    | -                    | 3                | -           | 3           | 11         | 11    | -              | -    | -    | -              | 43                   | 80   |
| Mississippi, University of     | 37           | 10                | 1             | 9              | -                         | 1    | -                    | 1                | -           | 1           | 3          | 18    | 4              | 1    | -    | 1              | 68                   | 105  |
| New Sch Soc Rsch/NY            | 36           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 16         | 20    | -              | -    | -    | -              | 2                    | 38   |
| Clarkson University/NY         | 35           | 7                 | 2             | 5              | -                         | 1    | 1                    | 3                | -           | 3           | -          | -     | 23             | 6    | 5    | 5              | -                    | 35   |

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

| Institution(1)                   | Major field |                   |            |            |                     |      |                |                  |          |          |         |       |                |      |      |      | Total all flds |            |
|----------------------------------|-------------|-------------------|------------|------------|---------------------|------|----------------|------------------|----------|----------|---------|-------|----------------|------|------|------|----------------|------------|
|                                  | Total S&E   | Physical sciences |            |            | Earth/ atmos/ ocean | Math | Comp/ info sci | Agric & biol sci |          |          | Soc sci | Psych | Engineering(2) |      |      |      |                | Non-S&E(3) |
|                                  |             | Sub-total         | Phys& astr | Chem-istry |                     |      |                | Sub-total        | Agri sci | Biol sci |         |       | Sub-total      | Chem | Elec | Mech |                |            |
| Fordham University/NY            | 34          | -                 | -          | -          | -                   | -    | -              | 1                | -        | 1        | 11      | 22    | -              | -    | -    | -    | 77             | 111        |
| Idaho, University of             | 34          | 4                 | -          | 4          | 4                   | -    | -              | 16               | 11       | 5        | -       | -     | 10             | 4    | 1    | -    | 26             | 60         |
| Fielding Institute/CA            | 34          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | -       | 34    | -              | -    | -    | -    | 7              | 41         |
| Fuller Theol Seminary/CA         | 33          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | 3       | 30    | -              | -    | -    | -    | 11             | 44         |
| Ohio University                  | 32          | 6                 | 4          | 2          | -                   | 1    | -              | 10               | -        | 10       | -       | 10    | 5              | 1    | 4    | -    | 71             | 103        |
| Texas Univ Health Sci-Houston    | 32          | 1                 | 1          | -          | -                   | -    | -              | 31               | -        | 31       | -       | -     | -              | -    | -    | -    | 24             | 56         |
| Nevada, University of            | 32          | 6                 | 1          | 5          | 9                   | -    | -              | 6                | -        | 6        | -       | 8     | 3              | -    | 2    | -    | 3              | 35         |
| Cornell Univ Med Coll/NY         | 31          | -                 | -          | -          | -                   | -    | -              | 31               | -        | 31       | -       | -     | -              | -    | -    | -    | -              | 31         |
| Old Dominion University/VA       | 31          | 1                 | 1          | -          | 3                   | 4    | 1              | 6                | -        | 6        | 2       | 5     | 9              | -    | 3    | 6    | 4              | 35         |
| Colorado School of Mines         | 31          | 1                 | -          | 1          | 12                  | 1    | -              | -                | -        | -        | 5       | -     | 12             | 3    | -    | -    | 1              | 32         |
| Yeshiva U-Einstein Coll Med/NY   | 30          | -                 | -          | -          | -                   | -    | -              | 30               | -        | 30       | -       | -     | -              | -    | -    | -    | -              | 30         |
| Northern Illinois University     | 30          | 11                | -          | 11         | 1                   | 1    | -              | 3                | -        | 3        | 8       | 6     | -              | -    | -    | -    | 77             | 107        |
| New Hampshire, University of     | 29          | 2                 | 1          | 1          | -                   | 1    | -              | 9                | 2        | 7        | 5       | 7     | 5              | 1    | -    | -    | 10             | 39         |
| North Dakota State University    | 29          | 5                 | -          | 5          | -                   | 1    | 2              | 18               | 9        | 9        | -       | -     | 3              | -    | 1    | 1    | -              | 29         |
| Texas U Southwestern Med Ctr     | 29          | -                 | -          | -          | -                   | -    | -              | 20               | -        | 20       | -       | 6     | 3              | -    | -    | -    | -              | 29         |
| Maine, University of-Orono       | 28          | 5                 | 2          | 3          | -                   | -    | -              | 10               | 3        | 7        | -       | 7     | 6              | 2    | -    | -    | 4              | 32         |
| Clark University/MA              | 28          | 8                 | 2          | 6          | -                   | -    | -              | 3                | -        | 3        | 10      | 7     | -              | -    | -    | -    | 3              | 31         |
| Toledo, University of/OH         | 28          | 4                 | 2          | 2          | -                   | -    | -              | -                | -        | -        | -       | 11    | 13             | -    | 3    | 4    | 29             | 57         |
| Baylor College of Medicine/TX    | 28          | -                 | -          | -          | -                   | -    | -              | 28               | -        | 28       | -       | -     | -              | -    | -    | -    | -              | 28         |
| Claremont Graduate School/CA     | 28          | -                 | -          | -          | -                   | 2    | 1              | 2                | -        | 2        | 9       | 14    | -              | -    | -    | -    | 43             | 71         |
| Rockefeller University/NY        | 27          | 2                 | 2          | -          | -                   | -    | -              | 25               | -        | 25       | -       | -     | -              | -    | -    | -    | -              | 27         |
| Michigan Tech University         | 27          | 10                | 5          | 5          | 1                   | -    | -              | 2                | -        | 2        | -       | -     | 14             | -    | 1    | 5    | -              | 27         |
| Western Michigan University      | 27          | -                 | -          | -          | -                   | 9    | -              | 1                | -        | 1        | 4       | 13    | -              | -    | -    | -    | 32             | 59         |
| American University/DC           | 27          | 4                 | 1          | 3          | -                   | 2    | -              | -                | -        | -        | 14      | 7     | -              | -    | -    | -    | 17             | 44         |
| Nova University/FL               | 27          | -                 | -          | -          | -                   | -    | 15             | -                | -        | -        | -       | 12    | -              | -    | -    | -    | 201            | 228        |
| Wright Institute, The-Berkley/CA | 27          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | -       | 27    | -              | -    | -    | -    | -              | 27         |
| Massachusetts, Univ of-Lowell    | 26          | 16                | 8          | 8          | -                   | -    | -              | 4                | -        | 4        | -       | -     | 6              | -    | -    | 1    | 9              | 35         |
| Missouri, Univ of-Kansas City    | 26          | 3                 | -          | 3          | -                   | 1    | -              | 3                | -        | 3        | -       | 19    | -              | -    | -    | -    | 24             | 50         |
| Louisville, University of/KY     | 26          | 2                 | -          | 2          | -                   | -    | 1              | 13               | -        | 13       | -       | 7     | 3              | 1    | -    | -    | 16             | 42         |
| Memphis State University/TN      | 26          | 1                 | -          | 1          | -                   | 1    | 1              | 3                | -        | 3        | -       | 19    | 1              | -    | 1    | -    | 54             | 80         |
| Texas Womans University          | 26          | -                 | -          | -          | -                   | -    | -              | 5                | 1        | 4        | 6       | 15    | -              | -    | -    | -    | 62             | 88         |
| Marquette University/WI          | 25          | 7                 | -          | 7          | -                   | 1    | -              | 4                | -        | 4        | -       | 4     | 9              | -    | 2    | 2    | 36             | 61         |
| St Johns University-Queens/NY    | 24          | -                 | -          | -          | -                   | -    | -              | 2                | -        | 2        | -       | 22    | -              | -    | -    | -    | 14             | 38         |
| Bowling Green State Univ/OH      | 24          | -                 | -          | -          | -                   | 5    | -              | 5                | -        | 5        | 4       | 10    | -              | -    | -    | -    | 41             | 65         |
| Maryland, Univ of, Sch Med       | 24          | 3                 | -          | 3          | -                   | -    | -              | 21               | -        | 21       | -       | -     | -              | -    | -    | -    | 19             | 43         |
| Maryland, Univ-Balt Cnty         | 24          | -                 | -          | -          | -                   | 2    | 3              | 6                | -        | 6        | 4       | 7     | 2              | 1    | 1    | -    | 3              | 27         |
| Montana State University         | 24          | 12                | 5          | 7          | 1                   | -    | -              | 6                | -        | 6        | -       | -     | 5              | 1    | 2    | 1    | 10             | 34         |
| SUNY Health Sci-Brooklyn         | 23          | -                 | -          | -          | -                   | -    | -              | 23               | -        | 23       | -       | -     | -              | -    | -    | -    | -              | 23         |
| Ball State University/IN         | 23          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | 4       | 19    | -              | -    | -    | -    | 41             | 64         |
| Southwestern LA, Univ of         | 23          | -                 | -          | -          | -                   | 7    | 12             | 1                | -        | 1        | -       | -     | 3              | -    | -    | -    | 12             | 35         |
| Adelphi University/NY            | 22          | -                 | -          | -          | -                   | 1    | -              | -                | -        | -        | -       | 21    | -              | -    | -    | -    | 17             | 39         |
| George Mason University/VA       | 22          | -                 | -          | -          | -                   | -    | 6              | 1                | -        | 1        | 8       | 7     | -              | -    | -    | -    | 13             | 35         |
| Worcester Poly Inst/MA           | 21          | 2                 | 2          | -          | -                   | -    | -              | 2                | -        | 2        | -       | -     | 17             | 3    | 5    | 2    | -              | 21         |
| Alabama, Univ of-Huntsville      | 21          | 5                 | 5          | -          | -                   | -    | 3              | -                | -        | -        | -       | -     | 13             | -    | 2    | 3    | -              | 21         |
| SUNY Envr Sci Frstry             | 19          | 1                 | -          | 1          | 3                   | -    | -              | 14               | 8        | 6        | -       | -     | 1              | -    | -    | -    | 1              | 20         |
| Montana, University of           | 19          | -                 | -          | -          | -                   | -    | -              | 8                | 3        | 5        | 2       | 9     | -              | -    | -    | -    | 3              | 22         |
| Calif Inst Integr'l Stds         | 19          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | -       | 19    | -              | -    | -    | -    | -              | 19         |
| Clark Atlanta University/GA      | 18          | -                 | -          | -          | -                   | -    | -              | 3                | -        | 3        | 4       | 11    | -              | -    | -    | -    | 31             | 49         |
| Texas Univ Med Br-Galveston      | 18          | -                 | -          | -          | -                   | -    | -              | 18               | -        | 18       | -       | -     | -              | -    | -    | -    | 1              | 19         |
| Fairleigh Dickinson Univ/NJ      | 17          | -                 | -          | -          | -                   | -    | -              | -                | -        | -        | -       | 17    | -              | -    | -    | -    | -              | 17         |

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

| Institution(1)                   | Total<br>S&E | Major field       |               |                |                           |      |                      |                  |             |             |            |       |                |      |      |                | Total<br>all<br>flds |      |
|----------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------|----------------------|------|
|                                  |              | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(2) |      |      | Non-<br>S&E(3) |                      |      |
|                                  |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                |                      | Mech |
| Health Sci U-Chicago Med/IL      | 17           | -                 | -             | -              | -                         | -    | -                    | 5                | -           | 5           | -          | 12    | -              | -    | -    | -              | -                    | 17   |
| Med Univ South Carolina          | 17           | 3                 | -             | 3              | -                         | -    | -                    | 14               | -           | 14          | -          | -     | -              | -    | -    | -              | 1                    | 18   |
| Saybrook Institute/CA            | 17           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 17    | -              | -    | -    | -              | -                    | 17   |
| Rutgers University-Newark/NJ     | 16           | 3                 | -             | 3              | -                         | -    | -                    | 5                | -           | 5           | 6          | 2     | -              | -    | -    | -              | 3                    | 19   |
| DePaul University/IL             | 16           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 16    | -              | -    | -    | -              | 1                    | 17   |
| Wake Forest University/NC        | 16           | -                 | -             | -              | -                         | -    | -                    | 16               | -           | 16          | -          | -     | -              | -    | -    | -              | -                    | 16   |
| New Mex Inst Mining & Tech       | 16           | 2                 | 1             | 1              | 7                         | -    | 1                    | -                | -           | -           | -          | -     | 6              | -    | -    | -              | -                    | 16   |
| Loma Linda University/CA         | 16           | -                 | -             | -              | -                         | -    | -                    | 16               | -           | 16          | -          | -     | -              | -    | -    | -              | 5                    | 21   |
| Alfred University/NY             | 15           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | 15             | -    | -    | -              | -                    | 15   |
| Yeshiva University/NY            | 15           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 15    | -              | -    | -    | -              | 9                    | 24   |
| Walden University/MN             | 15           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 13         | 2     | -              | -    | -    | -              | 46                   | 61   |
| Albany Medical College/NY        | 14           | -                 | -             | -              | -                         | -    | -                    | 14               | -           | 14          | -          | -     | -              | -    | -    | -              | -                    | 14   |
| Seton Hall University/NJ         | 14           | 7                 | -             | 7              | -                         | -    | -                    | -                | -           | -           | -          | 7     | -              | -    | -    | -              | 11                   | 25   |
| Med Coll Ohio at Toledo          | 14           | -                 | -             | -              | -                         | -    | -                    | 14               | -           | 14          | -          | -     | -              | -    | -    | -              | 1                    | 15   |
| Indiana State University         | 14           | -                 | -             | -              | -                         | -    | -                    | 4                | -           | 4           | -          | 10    | -              | -    | -    | -              | 12                   | 26   |
| Missouri, Univ of-St Louis       | 14           | 4                 | -             | 4              | -                         | -    | -                    | -                | -           | -           | -          | 10    | -              | -    | -    | -              | 14                   | 28   |
| North Dakota, University of      | 14           | 1                 | -             | 1              | -                         | -    | -                    | 3                | -           | 3           | -          | 10    | -              | -    | -    | -              | 20                   | 34   |
| Unfrn Svc Univ Hlth/MD           | 14           | -                 | -             | -              | -                         | -    | -                    | 12               | -           | 12          | -          | 2     | -              | -    | -    | -              | -                    | 14   |
| Tulsa, University of/OK          | 14           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 4     | 10             | 5    | -    | 1              | 13                   | 27   |
| Oregon Graduate Institute        | 14           | 4                 | 2             | 2              | 2                         | -    | 2                    | 1                | -           | 1           | -          | -     | 5              | -    | 3    | -              | -                    | 14   |
| Pacific Grad Psych/CA            | 14           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 14    | -              | -    | -    | -              | -                    | 14   |
| Bryn Mawr College/PA             | 13           | 3                 | 2             | 1              | 1                         | -    | -                    | -                | -           | -           | 2          | 7     | -              | -    | -    | -              | 20                   | 33   |
| NC, Univ of-Greensboro           | 13           | -                 | -             | -              | -                         | -    | -                    | 3                | -           | 3           | 2          | 8     | -              | -    | -    | -              | 67                   | 80   |
| LA St Univ, S Med-New Orleans    | 13           | -                 | -             | -              | -                         | -    | -                    | 13               | -           | 13          | -          | -     | -              | -    | -    | -              | 5                    | 18   |
| Portland State University/OR     | 13           | 4                 | 1             | 3              | 1                         | -    | -                    | 1                | -           | 1           | 5          | -     | 2              | -    | 1    | -              | 7                    | 20   |
| New York Medical College         | 12           | -                 | -             | -              | -                         | -    | -                    | 12               | -           | 12          | -          | -     | -              | -    | -    | -              | -                    | 12   |
| Medical College of Wisconsin     | 12           | 1                 | 1             | -              | -                         | -    | -                    | 11               | -           | 11          | -          | -     | -              | -    | -    | -              | -                    | 12   |
| South Dakota, University of      | 12           | -                 | -             | -              | -                         | -    | -                    | 5                | -           | 5           | -          | 7     | -              | -    | -    | -              | 21                   | 33   |
| William & Mary, Coll/VA          | 12           | 6                 | 6             | -              | 5                         | -    | -                    | 1                | -           | 1           | -          | -     | -              | -    | -    | -              | 26                   | 38   |
| Tennessee, Univ-Health Sci Ctr   | 12           | 1                 | -             | 1              | -                         | -    | -                    | 11               | -           | 11          | -          | -     | -              | -    | -    | -              | -                    | 12   |
| New Orleans, University of/LA    | 12           | 7                 | -             | 7              | -                         | -    | -                    | -                | -           | -           | 2          | 3     | -              | -    | -    | -              | 11                   | 23   |
| Northern Arizona University      | 12           | -                 | -             | -              | -                         | -    | -                    | 8                | -           | 8           | 4          | -     | -              | -    | -    | -              | 47                   | 59   |
| PR, Univ of-Rio Piedras          | 12           | 5                 | -             | 5              | -                         | -    | -                    | 2                | -           | 2           | 1          | 4     | -              | -    | -    | -              | 11                   | 23   |
| LIU-Brooklyn Campus/NY           | 11           | -                 | -             | -              | 1                         | -    | -                    | -                | -           | -           | -          | 10    | -              | -    | -    | -              | -                    | 11   |
| Florida Inst Technology          | 11           | -                 | -             | -              | 1                         | -    | -                    | 1                | -           | 1           | -          | 2     | -              | -    | 4    | 1              | 5                    | 16   |
| New Jersey Inst Technology       | 10           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | -     | 10             | 4    | 2    | 3              | -                    | 10   |
| Thomas Jefferson University/PA   | 10           | -                 | -             | -              | -                         | -    | -                    | 10               | -           | 10          | -          | -     | -              | -    | -    | -              | -                    | 10   |
| Illinois State University-Normal | 10           | -                 | -             | -              | -                         | 1    | -                    | 9                | -           | 9           | -          | -     | -              | -    | -    | -              | 29                   | 39   |
| Detroit Mercy, Univ/MI           | 10           | 1                 | -             | 1              | -                         | -    | -                    | -                | -           | -           | -          | 7     | 2              | -    | -    | 1              | -                    | 10   |
| Wichita State University/KS      | 10           | 2                 | -             | 2              | -                         | -    | -                    | 1                | -           | 1           | -          | -     | 7              | -    | 2    | 2              | 3                    | 13   |
| Medical College of Georgia       | 10           | -                 | -             | -              | -                         | -    | -                    | 10               | -           | 10          | -          | -     | -              | -    | -    | -              | 2                    | 12   |
| Idaho State University           | 10           | -                 | -             | -              | -                         | 1    | -                    | 6                | -           | 6           | 3          | -     | -              | -    | -    | -              | 6                    | 16   |
| Oregon Health Sci Univ           | 10           | -                 | -             | -              | -                         | -    | -                    | 10               | -           | 10          | -          | -     | -              | -    | -    | -              | 5                    | 15   |
| Rand Grad School/CA              | 10           | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 10         | -     | -              | -    | -    | -              | -                    | 10   |
| Alaska, University of            | 10           | 2                 | 2             | -              | 6                         | -    | -                    | 2                | 1           | 1           | -          | -     | -              | -    | -    | -              | -                    | 10   |
| Wesleyan University/CT           | 9            | 3                 | -             | 3              | -                         | 4    | -                    | 2                | -           | 2           | -          | -     | -              | -    | -    | -              | 2                    | 11   |
| New Jersey Med Sch-Newark        | 9            | -                 | -             | -              | -                         | -    | -                    | 9                | -           | 9           | -          | -     | -              | -    | -    | -              | -                    | 9    |
| Duquesne University/PA           | 9            | -                 | -             | -              | -                         | -    | -                    | 1                | -           | 1           | -          | 8     | -              | -    | -    | -              | 9                    | 18   |
| Medical College of Pennsylvania  | 9            | -                 | -             | -              | -                         | -    | -                    | 9                | -           | 9           | -          | -     | -              | -    | -    | -              | -                    | 9    |
| Cleveland State University/OH    | 9            | 7                 | -             | 7              | -                         | -    | -                    | 2                | -           | 2           | -          | -     | -              | -    | -    | -              | 2                    | 11   |

See footnotes at end of table.

Table 6. Institutions conferring science and engineering (S&amp;E) doctorates, by major field: 1991--continued

| Institution(1)                    | Major field  |                   |               |                |                           |      |                      |                  |             |             |            |       |                |      |      | Total<br>all<br>flds |                |      |
|-----------------------------------|--------------|-------------------|---------------|----------------|---------------------------|------|----------------------|------------------|-------------|-------------|------------|-------|----------------|------|------|----------------------|----------------|------|
|                                   | Total<br>S&E | Physical sciences |               |                | Earth/<br>atmos/<br>ocean | Math | Comp/<br>info<br>sci | Agric & biol sci |             |             | Soc<br>sci | Psych | Engineering(2) |      |      |                      | Non-<br>S&E(3) |      |
|                                   |              | Sub-<br>total     | Phys&<br>astr | Chem-<br>istry |                           |      |                      | Sub-<br>total    | Agri<br>sci | Biol<br>sci |            |       | Sub-<br>total  | Chem | Elec |                      |                | Mech |
| Rush University/IL                | 9            | -                 | -             | -              | -                         | -    | -                    | 9                | -           | 9           | -          | -     | -              | -    | -    | 14                   | 23             |      |
| Central Florida, U/FL             | 9            | -                 | -             | -              | -                         | -    | 1                    | -                | -           | -           | -          | 8     | -              | 1    | -    | 11                   | 20             |      |
| Texas Christian University        | 9            | 3                 | 1             | 2              | -                         | -    | -                    | -                | -           | -           | 6          | -     | -              | -    | -    | 8                    | 17             |      |
| Wright State University/OH        | 8            | -                 | -             | -              | -                         | -    | -                    | 8                | -           | 8           | -          | -     | -              | -    | -    | -                    | 8              |      |
| Mayo Graduate School/MN           | 8            | -                 | -             | -              | -                         | -    | -                    | 8                | -           | 8           | -          | -     | -              | -    | -    | 1                    | 9              |      |
| Mass, U Med S-Worcester           | 7            | -                 | -             | -              | -                         | -    | -                    | 7                | -           | 7           | -          | -     | -              | -    | -    | 2                    | 9              |      |
| Oakland University/MI             | 7            | 2                 | 2             | -              | -                         | -    | -                    | 2                | -           | 2           | -          | 3     | -              | -    | -    | 2                    | 9              |      |
| South Dakota Sch Mine & Tech      | 7            | -                 | -             | -              | 1                         | -    | -                    | -                | -           | -           | -          | 6     | -              | -    | -    | -                    | 7              |      |
| South Dakota State University     | 7            | -                 | -             | -              | -                         | -    | -                    | 7                | 6           | 1           | -          | -     | -              | -    | -    | -                    | 7              |      |
| East Carolina Univ Sch Med/NC     | 7            | -                 | -             | -              | -                         | -    | -                    | 7                | -           | 7           | -          | -     | -              | -    | -    | -                    | 7              |      |
| LSU, Sch Med-Shreveport           | 7            | -                 | -             | -              | -                         | -    | -                    | 7                | -           | 7           | -          | -     | -              | -    | -    | -                    | 7              |      |
| Sam Houston State Univ/TX         | 7            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 7          | -     | -              | -    | -    | -                    | 7              |      |
| Northern Colorado, Univ of        | 7            | -                 | -             | -              | -                         | 4    | -                    | 1                | -           | 1           | -          | 2     | -              | -    | -    | 36                   | 43             |      |
| Naval Postgrad School/CA          | 7            | 1                 | 1             | -              | 1                         | 2    | 1                    | -                | -           | -           | -          | 2     | -              | 2    | -    | -                    | 7              |      |
| Air Force Inst Tech/OH            | 6            | -                 | -             | -              | -                         | 1    | -                    | -                | -           | -           | -          | 5     | -              | 4    | -    | -                    | 6              |      |
| Dayton, University of/OH          | 6            | -                 | -             | -              | -                         | -    | -                    | 1                | -           | 1           | -          | 5     | -              | 2    | -    | -                    | 6              |      |
| East Tenn State University        | 6            | -                 | -             | -              | -                         | -    | -                    | 6                | -           | 6           | -          | -     | -              | -    | -    | 5                    | 11             |      |
| Caribbean Ctr Adv Studies/PR      | 6            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 6          | -     | -              | -    | -    | -                    | 6              |      |
| Florida Atlantic University       | 5            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 2          | 3     | -              | 1    | -    | 13                   | 18             |      |
| Middle Tennessee State University | 5            | 2                 | -             | 2              | -                         | -    | -                    | -                | -           | -           | 3          | -     | -              | -    | -    | 11                   | 16             |      |
| Arkansas U-Med Sciences           | 5            | -                 | -             | -              | -                         | -    | -                    | 5                | -           | 5           | -          | -     | -              | -    | -    | -                    | 5              |      |
| Baylor University/TX              | 5            | 5                 | 1             | 4              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | 19                   | 24             |      |
| S F Austin State Univ/TX          | 5            | -                 | -             | -              | -                         | -    | -                    | 5                | 5           | -           | -          | -     | -              | -    | -    | -                    | 5              |      |
| Texas Univ Hlth Sci-San Antonio   | 5            | -                 | -             | -              | -                         | -    | -                    | 5                | -           | 5           | -          | -     | -              | -    | -    | -                    | 5              |      |
| SUNY Health Sci-Syracuse          | 4            | -                 | -             | -              | -                         | -    | -                    | 4                | -           | 4           | -          | -     | -              | -    | -    | -                    | 4              |      |
| Tennessee Tech University         | 4            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 4     | -              | -    | 3    | -                    | 4              |      |
| George Peabody College/TN         | 4            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 4          | -     | -              | -    | -    | 62                   | 66             |      |
| Mississippi Univ-Medical Center   | 4            | -                 | -             | -              | -                         | -    | -                    | 4                | -           | 4           | -          | -     | -              | -    | -    | -                    | 4              |      |
| Biola University/CA               | 4            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 4          | -     | -              | -    | -    | 2                    | 6              |      |
| Hahnemann University/PA           | 3            | -                 | -             | -              | -                         | -    | -                    | 2                | -           | 2           | -          | 1     | -              | -    | -    | 1                    | 4              |      |
| Creighton University/NE           | 3            | -                 | -             | -              | -                         | -    | -                    | 3                | -           | 3           | -          | -     | -              | -    | -    | 1                    | 4              |      |
| Meharry Medical College/TN        | 3            | -                 | -             | -              | -                         | -    | -                    | 3                | -           | 3           | -          | -     | -              | -    | -    | -                    | 3              |      |
| Louisiana Tech University         | 3            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 3     | 1              | -    | 1    | 7                    | 10             |      |
| Northeast Louisiana University    | 3            | 1                 | -             | 1              | -                         | -    | -                    | 2                | -           | 2           | -          | -     | -              | -    | -    | 3                    | 6              |      |
| East Texas State University       | 3            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 3          | -     | -              | -    | -    | 48                   | 51             |      |
| Pacific, University of/CA         | 3            | 1                 | -             | 1              | -                         | -    | -                    | 2                | -           | 2           | -          | -     | -              | -    | -    | 12                   | 15             |      |
| Indiana University of PA          | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 2          | -     | -              | -    | -    | 24                   | 26             |      |
| Philadelphia Coll Pharm & Sci/PA  | 2            | 1                 | -             | 1              | -                         | -    | -                    | 1                | -           | 1           | -          | -     | -              | -    | -    | 6                    | 8              |      |
| Villanova University/PA           | 2            | 2                 | -             | 2              | -                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -                    | 2              |      |
| Northern Iowa, University of      | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 2     | -              | -    | -    | 9                    | 11             |      |
| Institute of Paper Sci/GA         | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 2     | -              | -    | -    | -                    | 2              |      |
| Florida International University  | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 1          | 1     | -              | -    | -    | 12                   | 14             |      |
| Southern Baptist Theol Sem/KY     | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 1          | 1     | -              | -    | -    | 38                   | 40             |      |
| South Alabama, Univ of            | 2            | -                 | -             | -              | -                         | -    | -                    | 2                | -           | 2           | -          | -     | -              | -    | -    | -                    | 2              |      |
| Dallas, University of/TX          | 2            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 1          | 1     | -              | -    | -    | 1                    | 3              |      |
| Texas, University of-El Paso      | 2            | -                 | -             | -              | 2                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -                    | 2              |      |
| Mass, University of-Boston        | 1            | -                 | -             | -              | 1                         | -    | -                    | -                | -           | -           | -          | -     | -              | -    | -    | -                    | 1              |      |
| Drew University/NJ                | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 1          | -     | -              | -    | -    | 20                   | 21             |      |
| Annenbrg Res Inst/PA              | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | 1          | -     | -              | -    | -    | 4                    | 5              |      |
| Lamar University/TX               | 1            | -                 | -             | -              | -                         | -    | -                    | -                | -           | -           | -          | 1     | -              | -    | 1    | -                    | 1              |      |

(1) The institutions are ranked according to number of S&E doctorate recipients (column 1). Degrees awarded by institutions jointly are included under the institution that officially conferred the degree.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

55

Table 7. Science and engineering (S&E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991

| Citizenship status and major field  | Postgraduation plans |                        |                    |                                     |            |           |            |            |           |                    |                       |
|-------------------------------------|----------------------|------------------------|--------------------|-------------------------------------|------------|-----------|------------|------------|-----------|--------------------|-----------------------|
|                                     | Total docts          | Total with defin plans | % with defin plans | Definite plans in the United States |            |           |            |            |           | Defin plans abroad | Defin plans locn unkn |
|                                     |                      |                        |                    | Total                               | Pdoc study | Acad empl | Indus empl | Other empl | Unkn type |                    |                       |
| TOTAL(1)                            |                      |                        |                    | Number                              |            |           |            |            |           |                    |                       |
| Total, S&E .....                    | 23,748               | 14,988                 | 63.1               | 12,654                              | 5,214      | 3,099     | 2,717      | 1,587      | 37        | 2,089              | 245                   |
| Total, sciences .....               | 18,536               | 12,133                 | 65.5               | 10,400                              | 4,753      | 2,637     | 1,640      | 1,340      | 30        | 1,541              | 192                   |
| Physical sciences .....             | 3,602                | 2,395                  | 66.5               | 2,044                               | 1,207      | 156       | 563        | 114        | 4         | 297                | 54                    |
| Physics/astronomy .....             | 1,408                | 911                    | 64.7               | 730                                 | 496        | 68        | 109        | 56         | 1         | 159                | 22                    |
| Chemistry .....                     | 2,194                | 1,484                  | 67.6               | 1,314                               | 711        | 88        | 454        | 58         | 3         | 138                | 32                    |
| Earth, atmos, & ocean sci .....     | 837                  | 543                    | 64.9               | 435                                 | 188        | 69        | 100        | 77         | 1         | 100                | 8                     |
| Mathematics .....                   | 1,040                | 598                    | 57.5               | 507                                 | 135        | 293       | 54         | 24         | 1         | 79                 | 12                    |
| Computer/info sciences .....        | 797                  | 500                    | 62.7               | 420                                 | 59         | 178       | 157        | 26         | -         | 75                 | 5                     |
| Agricultural & biological sci ..... | 5,714                | 3,975                  | 69.6               | 3,388                               | 2,537      | 385       | 266        | 189        | 11        | 522                | 65                    |
| Agricultural sciences .....         | 1,072                | 653                    | 60.9               | 436                                 | 164        | 109       | 99         | 63         | 1         | 202                | 15                    |
| Biological sciences .....           | 4,642                | 3,322                  | 71.6               | 2,952                               | 2,373      | 276       | 167        | 126        | 10        | 320                | 50                    |
| Social sciences .....               | 3,306                | 2,012                  | 60.9               | 1,575                               | 161        | 1,027     | 111        | 270        | 6         | 410                | 27                    |
| Psychology .....                    | 3,240                | 2,110                  | 65.1               | 2,031                               | 466        | 529       | 389        | 640        | 7         | 58                 | 21                    |
| Total, engineering(2) .....         | 5,212                | 2,855                  | 54.8               | 2,254                               | 461        | 462       | 1,077      | 247        | 7         | 548                | 53                    |
| Chemical .....                      | 620                  | 414                    | 66.8               | 352                                 | 63         | 25        | 244        | 19         | 1         | 56                 | 6                     |
| Civil .....                         | 509                  | 254                    | 49.9               | 176                                 | 23         | 64        | 68         | 20         | 1         | 72                 | 6                     |
| Electrical/electronics .....        | 1,206                | 647                    | 53.6               | 533                                 | 92         | 114       | 278        | 47         | 2         | 100                | 14                    |
| Materials science .....             | 362                  | 209                    | 57.7               | 150                                 | 58         | 10        | 66         | 16         | -         | 56                 | 3                     |
| Mechanical .....                    | 874                  | 443                    | 50.7               | 357                                 | 86         | 67        | 154        | 49         | 1         | 76                 | 10                    |
| Total, non-S&E(3) .....             | 13,703               | 9,094                  | 66.4               | 8,212                               | 393        | 4,834     | 479        | 2,443      | 63        | 762                | 120                   |
| Total, all fields .....             | 37,451               | 24,082                 | 64.3               | 20,866                              | 5,607      | 7,933     | 3,196      | 4,030      | 100       | 2,851              | 365                   |
| U.S. CITIZENS                       |                      |                        |                    |                                     |            |           |            |            |           |                    |                       |
| Total, S&E .....                    | 13,923               | 10,048                 | 72.2               | 9,523                               | 3,651      | 2,434     | 1,961      | 1,457      | 20        | 441                | 84                    |
| Total, sciences .....               | 11,946               | 8,649                  | 72.4               | 8,191                               | 3,466      | 2,131     | 1,335      | 1,240      | 19        | 386                | 72                    |
| Physical sciences .....             | 2,048                | 1,536                  | 75.0               | 1,421                               | 745        | 130       | 443        | 100        | 3         | 103                | 12                    |
| Physics/astronomy .....             | 737                  | 518                    | 70.3               | 456                                 | 274        | 57        | 77         | 47         | 1         | 58                 | 4                     |
| Chemistry .....                     | 1,311                | 1,018                  | 77.7               | 965                                 | 471        | 73        | 366        | 53         | 2         | 45                 | 8                     |
| Earth, atmos, & ocean sci .....     | 584                  | 411                    | 70.4               | 375                                 | 150        | 66        | 85         | 74         | -         | 33                 | 3                     |
| Mathematics .....                   | 439                  | 297                    | 67.7               | 288                                 | 65         | 168       | 37         | 18         | -         | 8                  | 1                     |
| Computer/info sciences .....        | 379                  | 259                    | 68.3               | 235                                 | 25         | 114       | 76         | 20         | -         | 23                 | 1                     |
| Agricultural & biological sci ..... | 3,799                | 2,828                  | 74.4               | 2,661                               | 1,923      | 338       | 215        | 179        | 6         | 140                | 27                    |
| Agricultural sciences .....         | 551                  | 365                    | 66.2               | 338                                 | 107        | 99        | 72         | 60         | -         | 22                 | 5                     |
| Biological sciences .....           | 3,248                | 2,463                  | 75.8               | 2,323                               | 1,816      | 239       | 143        | 119        | 6         | 118                | 22                    |
| Social sciences .....               | 1,901                | 1,321                  | 69.5               | 1,249                               | 119        | 805       | 100        | 222        | 3         | 60                 | 12                    |
| Psychology .....                    | 2,796                | 1,997                  | 71.4               | 1,962                               | 439        | 510       | 379        | 627        | 7         | 19                 | 16                    |
| Total, engineering(2) .....         | 1,977                | 1,399                  | 70.8               | 1,332                               | 185        | 303       | 626        | 217        | 1         | 55                 | 12                    |
| Chemical .....                      | 316                  | 245                    | 77.5               | 236                                 | 26         | 20        | 171        | 19         | -         | 7                  | 2                     |
| Civil .....                         | 139                  | 100                    | 71.9               | 95                                  | 8          | 43        | 27         | 17         | -         | 3                  | 2                     |
| Electrical/electronics .....        | 465                  | 299                    | 64.3               | 290                                 | 33         | 75        | 143        | 39         | -         | 7                  | 2                     |
| Materials science .....             | 152                  | 107                    | 70.4               | 89                                  | 22         | 7         | 48         | 12         | -         | 17                 | 1                     |
| Mechanical .....                    | 279                  | 202                    | 72.4               | 196                                 | 24         | 47        | 83         | 42         | -         | 5                  | 1                     |
| Total, non-S&E(3) .....             | 10,798               | 7,786                  | 72.1               | 7,569                               | 311        | 4,356     | 437        | 2,404      | 61        | 127                | 90                    |
| Total, all fields .....             | 24,721               | 17,834                 | 72.1               | 17,092                              | 3,962      | 6,790     | 2,398      | 3,861      | 81        | 568                | 174                   |

See footnotes at end of table.

Table 7. Science and engineering (S&E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991—continued

| Citizenship status and major field  | Postgraduation plans |                        |                    |                                     |            |           |            |            |           |                    |                      |
|-------------------------------------|----------------------|------------------------|--------------------|-------------------------------------|------------|-----------|------------|------------|-----------|--------------------|----------------------|
|                                     | Total docts          | Total with defin plans | % with defin plans | Definite plans in the United States |            |           |            |            |           | Defin plans abroad | Defin plans locn unk |
|                                     |                      |                        |                    | Total                               | Pdoc study | Acad empl | Indus empl | Other empl | Unkn type |                    |                      |
| Number                              |                      |                        |                    |                                     |            |           |            |            |           |                    |                      |
| NON-U.S. CITIZENS, PERMANENT VISAS  |                      |                        |                    |                                     |            |           |            |            |           |                    |                      |
| Total, S&E .....                    | 1,252                | 671                    | 53.6               | 575                                 | 219        | 128       | 185        | 38         | 5         | 75                 | 21                   |
| Total, sciences .....               | 871                  | 491                    | 56.4               | 418                                 | 195        | 104       | 86         | 30         | 3         | 57                 | 16                   |
| Physical sciences .....             | 178                  | 107                    | 60.1               | 94                                  | 56         | 7         | 29         | 2          | -         | 10                 | 3                    |
| Physics/astronomy .....             | 69                   | 44                     | 63.8               | 37                                  | 27         | 2         | 7          | 1          | -         | 6                  | 1                    |
| Chemistry .....                     | 109                  | 63                     | 57.8               | 57                                  | 29         | 5         | 22         | 1          | -         | 4                  | 2                    |
| Earth, atmos, & ocean sci .....     | 26                   | 12                     | 46.2               | 12                                  | 4          | -         | 6          | 2          | -         | -                  | -                    |
| Mathematics .....                   | 55                   | 30                     | 54.5               | 27                                  | 6          | 14        | 4          | 3          | -         | 3                  | -                    |
| Computer/info sciences .....        | 62                   | 35                     | 56.5               | 33                                  | 5          | 6         | 21         | 1          | -         | 2                  | -                    |
| Agricultural & biological sci ..... | 263                  | 165                    | 62.7               | 140                                 | 107        | 12        | 17         | 4          | -         | 18                 | 7                    |
| Agricultural sciences .....         | 56                   | 24                     | 42.9               | 18                                  | 6          | 3         | 8          | 1          | -         | 5                  | 1                    |
| Biological sciences .....           | 207                  | 141                    | 68.1               | 122                                 | 101        | 9         | 9          | 3          | -         | 13                 | 6                    |
| Social sciences .....               | 227                  | 106                    | 46.7               | 83                                  | 8          | 60        | 3          | 9          | 3         | 18                 | 5                    |
| Psychology .....                    | 60                   | 36                     | 60.0               | 29                                  | 9          | 5         | 6          | 9          | -         | 6                  | 1                    |
| Total, engineering(2) .....         | 381                  | 180                    | 47.2               | 157                                 | 24         | 24        | 99         | 8          | 2         | 18                 | 5                    |
| Chemical .....                      | 44                   | 25                     | 56.8               | 22                                  | 3          | -         | 19         | -          | -         | 3                  | -                    |
| Civil .....                         | 35                   | 16                     | 45.7               | 13                                  | -          | 3         | 9          | 1          | -         | 2                  | 1                    |
| Electrical/electronics .....        | 113                  | 58                     | 51.3               | 49                                  | 5          | 7         | 33         | 3          | 1         | 6                  | 3                    |
| Materials science.....              | 25                   | 10                     | 40.0               | 10                                  | 5          | -         | 5          | -          | -         | -                  | -                    |
| Mechanical .....                    | 59                   | 27                     | 45.8               | 24                                  | 6          | 5         | 11         | 2          | -         | 2                  | 1                    |
| Total, non-S&E(3) .....             | 562                  | 304                    | 54.1               | 242                                 | 28         | 170       | 21         | 22         | 1         | 58                 | 4                    |
| Total, all fields .....             | 1,814                | 975                    | 53.7               | 817                                 | 247        | 298       | 206        | 60         | 6         | 133                | 25                   |
| NON-U.S. CITIZENS, TEMPORARY VISAS  |                      |                        |                    |                                     |            |           |            |            |           |                    |                      |
| Total, S&E .....                    | 7,252                | 4,241                  | 58.5               | 2,551                               | 1,341      | 536       | 570        | 92         | 12        | 1,550              | 140                  |
| Total, sciences .....               | 4,779                | 2,971                  | 62.2               | 1,787                               | 1,090      | 401       | 218        | 70         | 8         | 1,080              | 104                  |
| Physical sciences .....             | 1,205                | 747                    | 62.0               | 527                                 | 405        | 19        | 90         | 12         | 1         | 181                | 39                   |
| Physics/astronomy .....             | 546                  | 348                    | 63.7               | 237                                 | 195        | 9         | 25         | 8          | -         | 94                 | 17                   |
| Chemistry .....                     | 659                  | 399                    | 60.5               | 290                                 | 210        | 10        | 65         | 4          | 1         | 87                 | 22                   |
| Earth, atmos, & ocean sci .....     | 188                  | 119                    | 63.3               | 48                                  | 34         | 3         | 9          | 1          | 1         | 66                 | 5                    |
| Mathematics .....                   | 480                  | 270                    | 56.3               | 191                                 | 64         | 110       | 13         | 3          | 1         | 68                 | 11                   |
| Computer/info sciences .....        | 338                  | 206                    | 60.9               | 152                                 | 29         | 58        | 60         | 5          | -         | 50                 | 4                    |
| Agricultural & biological sci ..... | 1,451                | 973                    | 67.1               | 586                                 | 506        | 35        | 34         | 6          | 5         | 356                | 31                   |
| Agricultural sciences .....         | 424                  | 259                    | 61.1               | 79                                  | 50         | 7         | 19         | 2          | 1         | 171                | 9                    |
| Biological sciences .....           | 1,027                | 714                    | 69.5               | 507                                 | 456        | 28        | 15         | 4          | 4         | 185                | 22                   |
| Social sciences .....               | 996                  | 580                    | 58.2               | 243                                 | 34         | 162       | 8          | 39         | -         | 327                | 10                   |
| Psychology .....                    | 121                  | 76                     | 62.8               | 40                                  | 18         | 14        | 4          | 4          | -         | 32                 | 4                    |
| Total, engineering(2) .....         | 2,473                | 1,270                  | 51.4               | 764                                 | 251        | 135       | 352        | 22         | 4         | 470                | 36                   |
| Chemical .....                      | 238                  | 143                    | 60.1               | 94                                  | 34         | 5         | 54         | -          | 1         | 45                 | 4                    |
| Civil .....                         | 303                  | 136                    | 44.9               | 68                                  | 15         | 18        | 32         | 2          | 1         | 65                 | 3                    |
| Electrical/electronics .....        | 554                  | 290                    | 52.3               | 194                                 | 54         | 32        | 102        | 5          | 1         | 87                 | 9                    |
| Materials science .....             | 164                  | 92                     | 56.1               | 51                                  | 31         | 3         | 13         | 4          | -         | 39                 | 2                    |
| Mechanical .....                    | 457                  | 213                    | 46.6               | 136                                 | 55         | 15        | 60         | 5          | 1         | 69                 | 8                    |
| Total, non-S&E(3) .....             | 1,600                | 986                    | 61.6               | 396                                 | 54         | 304       | 21         | 16         | 1         | 564                | 26                   |
| Total, all fields .....             | 8,852                | 5,227                  | 59.0               | 2,947                               | 1,395      | 840       | 591        | 108        | 13        | 2,114              | 166                  |

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

Table 8. Science and engineering (S&E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991

| Citizenship status and major field  | Total with defin plans | Postgraduation plans                |            |           |            |            |           | Defin plans abroad | Defin plans locn unkn |
|-------------------------------------|------------------------|-------------------------------------|------------|-----------|------------|------------|-----------|--------------------|-----------------------|
|                                     |                        | Definite plans in the United States |            |           |            |            |           |                    |                       |
|                                     |                        | Total                               | Pdoc study | Acad empl | Indus empl | Other empl | Unkn type |                    |                       |
| TOTAL(1)                            |                        | Percentage Distribution             |            |           |            |            |           |                    |                       |
| Total, S&E .....                    | 100.0                  | 84.4                                | 34.8       | 20.7      | 18.1       | 10.6       | 0.2       | 13.9               | 1.6                   |
| Total, sciences .....               | 100.0                  | 85.7                                | 39.2       | 21.7      | 13.5       | 11.0       | 0.2       | 12.7               | 1.6                   |
| Physical sciences .....             | 100.0                  | 85.3                                | 50.4       | 6.5       | 23.5       | 4.8        | 0.2       | 12.4               | 2.3                   |
| Physics/astronomy .....             | 100.0                  | 80.1                                | 54.4       | 7.5       | 12.0       | 6.1        | 0.1       | 17.5               | 2.4                   |
| Chemistry .....                     | 100.0                  | 88.5                                | 47.9       | 5.9       | 30.6       | 3.9        | 0.2       | 9.3                | 2.2                   |
| Earth, atmos, & ocean sci .....     | 100.0                  | 80.1                                | 34.6       | 12.7      | 18.4       | 14.2       | 0.2       | 18.4               | 1.5                   |
| Mathematics .....                   | 100.0                  | 84.8                                | 22.6       | 49.0      | 9.0        | 4.0        | 0.2       | 13.2               | 2.0                   |
| Computer/info sciences .....        | 100.0                  | 84.0                                | 11.8       | 35.6      | 31.4       | 5.2        | -         | 15.0               | 1.0                   |
| Agricultural & biological sci ..... | 100.0                  | 85.2                                | 63.8       | 9.7       | 6.7        | 4.8        | 0.3       | 13.1               | 1.6                   |
| Agricultural sciences .....         | 100.0                  | 66.8                                | 25.1       | 16.7      | 15.2       | 9.6        | 0.2       | 30.9               | 2.3                   |
| Biological sciences .....           | 100.0                  | 88.9                                | 71.4       | 8.3       | 5.0        | 3.8        | 0.3       | 9.6                | 1.5                   |
| Social sciences .....               | 100.0                  | 78.3                                | 8.0        | 51.0      | 5.5        | 13.4       | 0.3       | 20.4               | 1.3                   |
| Psychology .....                    | 100.0                  | 96.3                                | 22.1       | 25.1      | 18.4       | 30.3       | 0.3       | 2.7                | 1.0                   |
| Total, engineering(2) .....         | 100.0                  | 78.9                                | 16.1       | 16.2      | 37.7       | 8.7        | 0.2       | 19.2               | 1.9                   |
| Chemical .....                      | 100.0                  | 85.0                                | 15.2       | 6.0       | 58.9       | 4.6        | 0.2       | 13.5               | 1.4                   |
| Civil .....                         | 100.0                  | 69.3                                | 9.1        | 25.2      | 26.8       | 7.9        | 0.4       | 28.3               | 2.4                   |
| Electrical/electronics .....        | 100.0                  | 82.4                                | 14.2       | 17.6      | 43.0       | 7.3        | 0.3       | 15.5               | 2.2                   |
| Materials science .....             | 100.0                  | 71.8                                | 27.8       | 4.8       | 31.6       | 7.7        | -         | 26.8               | 1.4                   |
| Mechanical .....                    | 100.0                  | 80.6                                | 19.4       | 15.1      | 34.8       | 11.1       | 0.2       | 17.2               | 2.3                   |
| Total, non-S&E(3) .....             | 100.0                  | 90.3                                | 4.3        | 53.2      | 5.3        | 26.9       | 0.7       | 8.4                | 1.3                   |
| Total, all fields .....             | 100.0                  | 86.6                                | 23.3       | 32.9      | 13.3       | 16.7       | 0.4       | 11.8               | 1.5                   |
| U.S. CITIZENS                       |                        |                                     |            |           |            |            |           |                    |                       |
| Total, S&E .....                    | 100.0                  | 94.8                                | 36.3       | 24.2      | 19.5       | 14.5       | 0.2       | 4.4                | 0.8                   |
| Total, sciences .....               | 100.0                  | 94.7                                | 40.1       | 24.6      | 15.4       | 14.3       | 0.2       | 4.5                | 0.8                   |
| Physical sciences .....             | 100.0                  | 92.5                                | 48.5       | 8.5       | 28.8       | 6.5        | 0.2       | 6.7                | 0.8                   |
| Physics/astronomy .....             | 100.0                  | 88.0                                | 52.9       | 11.0      | 14.9       | 9.1        | 0.2       | 11.2               | 0.8                   |
| Chemistry .....                     | 100.0                  | 94.8                                | 46.3       | 7.2       | 36.0       | 5.2        | 0.2       | 4.4                | 0.8                   |
| Earth, atmos, & ocean sci .....     | 100.0                  | 91.2                                | 36.5       | 16.1      | 20.7       | 18.0       | -         | 8.0                | 0.7                   |
| Mathematics .....                   | 100.0                  | 97.0                                | 21.9       | 56.6      | 12.5       | 6.1        | -         | 2.7                | 0.3                   |
| Computer/info sciences .....        | 100.0                  | 90.7                                | 9.7        | 44.0      | 29.3       | 7.7        | -         | 8.9                | 0.4                   |
| Agricultural & biological sci ..... | 100.0                  | 94.1                                | 68.0       | 12.0      | 7.6        | 6.3        | 0.2       | 5.0                | 1.0                   |
| Agricultural sciences .....         | 100.0                  | 92.6                                | 29.3       | 27.1      | 19.7       | 16.4       | -         | 6.0                | 1.4                   |
| Biological sciences .....           | 100.0                  | 94.3                                | 73.7       | 9.7       | 5.8        | 4.8        | 0.2       | 4.8                | 0.9                   |
| Social sciences .....               | 100.0                  | 94.5                                | 9.0        | 60.9      | 7.6        | 16.8       | 0.2       | 4.5                | 0.9                   |
| Psychology .....                    | 100.0                  | 98.2                                | 22.0       | 25.5      | 19.0       | 31.4       | 0.4       | 1.0                | 0.8                   |
| Total, engineering(2) .....         | 100.0                  | 95.2                                | 13.2       | 21.7      | 44.7       | 15.5       | 0.1       | 3.9                | 0.9                   |
| Chemical .....                      | 100.0                  | 96.3                                | 10.6       | 8.2       | 69.8       | 7.8        | -         | 2.9                | 0.8                   |
| Civil .....                         | 100.0                  | 95.0                                | 8.0        | 43.0      | 27.0       | 17.0       | -         | 3.0                | 2.0                   |
| Electrical/electronics .....        | 100.0                  | 97.0                                | 11.0       | 25.1      | 47.8       | 13.0       | -         | 2.3                | 0.7                   |
| Materials science .....             | 100.0                  | 83.2                                | 20.6       | 6.5       | 44.9       | 11.2       | -         | 15.9               | 0.9                   |
| Mechanical .....                    | 100.0                  | 97.0                                | 11.9       | 23.3      | 41.1       | 20.8       | -         | 2.5                | 0.5                   |
| Total, non-S&E(3) .....             | 100.0                  | 97.2                                | 4.0        | 55.9      | 5.6        | 30.9       | 0.8       | 1.6                | 1.2                   |
| Total, all fields .....             | 100.0                  | 95.8                                | 22.2       | 38.1      | 13.4       | 21.6       | 0.5       | 3.2                | 1.0                   |

See footnotes at end of table.

58

Table 8. Science and engineering (S&E) doctorates awarded, by citizenship status, major field, and postgraduation plans of recipients: 1991--continued

| Citizenship<br>status and<br>major field | Total<br>with<br>defin<br>plans | Postgraduation plans                |               |              |               |               |              | Defin<br>plans<br>abroad | Defin<br>plans<br>locn<br>unkn |
|------------------------------------------|---------------------------------|-------------------------------------|---------------|--------------|---------------|---------------|--------------|--------------------------|--------------------------------|
|                                          |                                 | Definite plans in the United States |               |              |               |               |              |                          |                                |
|                                          |                                 | Total                               | Pdoc<br>study | Acad<br>empl | Indus<br>empl | Other<br>empl | Unkn<br>type |                          |                                |
| NON-U.S. CITIZENS, PERMANENT VISAS       |                                 | Percentage Distribution             |               |              |               |               |              |                          |                                |
| Total, S&E .....                         | 100.0                           | 85.7                                | 32.6          | 19.1         | 27.6          | 5.7           | 0.7          | 11.2                     | 3.1                            |
| Total, sciences .....                    | 100.0                           | 85.1                                | 39.7          | 21.2         | 17.5          | 6.1           | 0.6          | 11.6                     | 3.3                            |
| Physical sciences .....                  | 100.0                           | 87.9                                | 52.3          | 6.5          | 27.1          | 1.9           | -            | 9.3                      | 2.8                            |
| Physics/astronomy .....                  | 100.0                           | 84.1                                | 61.4          | 4.5          | 15.9          | 2.3           | -            | 13.6                     | 2.3                            |
| Chemistry .....                          | 100.0                           | 90.5                                | 46.0          | 7.9          | 34.9          | 1.6           | -            | 6.3                      | 3.2                            |
| Earth, atmos, & ocean sci .....          | 100.0                           | 100.0                               | 33.3          | -            | 50.0          | 16.7          | -            | -                        | -                              |
| Mathematics .....                        | 100.0                           | 90.0                                | 20.0          | 46.7         | 13.3          | 10.0          | -            | 10.0                     | -                              |
| Computer/info sciences .....             | 100.0                           | 94.3                                | 14.3          | 17.1         | 60.0          | 2.9           | -            | 5.7                      | -                              |
| Agricultural & biological sci .....      | 100.0                           | 84.8                                | 64.8          | 7.3          | 10.3          | 2.4           | -            | 10.9                     | 4.2                            |
| Agricultural sciences .....              | 100.0                           | 75.0                                | 25.0          | 12.5         | 33.3          | 4.2           | -            | 20.8                     | 4.2                            |
| Biological sciences .....                | 100.0                           | 86.5                                | 71.6          | 6.4          | 6.4           | 2.1           | -            | 9.2                      | 4.3                            |
| Social sciences .....                    | 100.0                           | 78.3                                | 7.5           | 56.6         | 2.8           | 8.5           | 2.8          | 17.0                     | 4.7                            |
| Psychology .....                         | 100.0                           | 80.6                                | 25.0          | 13.9         | 16.7          | 25.0          | -            | 16.7                     | 2.8                            |
| Total, engineering(2) .....              | 100.0                           | 87.2                                | 13.3          | 13.3         | 55.0          | 4.4           | 1.1          | 10.0                     | 2.8                            |
| Chemical .....                           | 100.0                           | 88.0                                | 12.0          | -            | 76.0          | -             | -            | 12.0                     | -                              |
| Civil .....                              | 100.0                           | 81.3                                | -             | 18.8         | 56.3          | 6.3           | -            | 12.5                     | 6.3                            |
| Electrical/electronics .....             | 100.0                           | 84.5                                | 8.6           | 12.1         | 56.9          | 5.2           | 1.7          | 10.3                     | 5.2                            |
| Materials science .....                  | 100.0                           | 100.0                               | 50.0          | -            | 50.0          | -             | -            | -                        | -                              |
| Mechanical .....                         | 100.0                           | 88.9                                | 22.2          | 18.5         | 40.7          | 7.4           | -            | 7.4                      | 3.7                            |
| Total, non-S&E(3) .....                  | 100.0                           | 79.6                                | 9.2           | 55.9         | 6.9           | 7.2           | 0.3          | 19.1                     | 1.3                            |
| Total, all fields .....                  | 100.0                           | 83.8                                | 25.3          | 30.6         | 21.1          | 6.2           | 0.6          | 13.6                     | 2.6                            |
| NON-U.S. CITIZENS, TEMPORARY VISAS       |                                 |                                     |               |              |               |               |              |                          |                                |
| Total, S&E .....                         | 100.0                           | 60.2                                | 31.6          | 12.6         | 13.4          | 2.2           | 0.3          | 36.5                     | 3.3                            |
| Total, sciences .....                    | 100.0                           | 60.1                                | 36.7          | 13.5         | 7.3           | 2.4           | 0.3          | 36.4                     | 3.5                            |
| Physical sciences .....                  | 100.0                           | 70.5                                | 54.2          | 2.5          | 12.0          | 1.6           | 0.1          | 24.2                     | 5.2                            |
| Physics/astronomy .....                  | 100.0                           | 68.1                                | 56.0          | 2.6          | 7.2           | 2.3           | -            | 27.0                     | 4.9                            |
| Chemistry .....                          | 100.0                           | 72.7                                | 52.6          | 2.5          | 16.3          | 1.0           | 0.3          | 21.8                     | 5.5                            |
| Earth, atmos, & ocean sci .....          | 100.0                           | 40.3                                | 28.6          | 2.5          | 7.6           | 0.8           | 0.8          | 55.5                     | 4.2                            |
| Mathematics .....                        | 100.0                           | 70.7                                | 23.7          | 40.7         | 4.8           | 1.1           | 0.4          | 25.2                     | 4.1                            |
| Computer/info sciences .....             | 100.0                           | 73.8                                | 14.1          | 28.2         | 29.1          | 2.4           | -            | 24.3                     | 1.9                            |
| Agricultural & biological sci .....      | 100.0                           | 60.2                                | 52.0          | 3.6          | 3.5           | 0.6           | 0.5          | 36.6                     | 3.2                            |
| Agricultural sciences .....              | 100.0                           | 30.5                                | 19.3          | 2.7          | 7.3           | 0.8           | 0.4          | 66.0                     | 3.5                            |
| Biological sciences .....                | 100.0                           | 71.0                                | 63.9          | 3.9          | 2.1           | 0.6           | 0.6          | 25.9                     | 3.1                            |
| Social sciences .....                    | 100.0                           | 41.9                                | 5.9           | 27.9         | 1.4           | 6.7           | -            | 56.4                     | 1.7                            |
| Psychology .....                         | 100.0                           | 52.6                                | 23.7          | 18.4         | 5.3           | 5.3           | -            | 42.1                     | 5.3                            |
| Total, engineering(2) .....              | 100.0                           | 60.2                                | 19.8          | 10.6         | 27.7          | 1.7           | 0.3          | 37.0                     | 2.8                            |
| Chemical .....                           | 100.0                           | 65.7                                | 23.8          | 3.5          | 37.8          | -             | 0.7          | 31.5                     | 2.8                            |
| Civil .....                              | 100.0                           | 50.0                                | 11.0          | 13.2         | 23.5          | 1.5           | 0.7          | 47.8                     | 2.2                            |
| Electrical/electronics .....             | 100.0                           | 66.9                                | 18.6          | 11.0         | 35.2          | 1.7           | 0.3          | 30.0                     | 3.1                            |
| Materials science .....                  | 100.0                           | 55.4                                | 33.7          | 3.3          | 14.1          | 4.3           | -            | 42.4                     | 2.2                            |
| Mechanical .....                         | 100.0                           | 63.8                                | 25.8          | 7.0          | 28.2          | 2.3           | 0.5          | 32.4                     | 3.8                            |
| Total, non-S&E(3) .....                  | 100.0                           | 40.2                                | 5.5           | 30.8         | 2.1           | 1.6           | 0.1          | 57.2                     | 2.6                            |
| Total, all fields .....                  | 100.0                           | 56.4                                | 26.7          | 16.1         | 11.3          | 2.1           | 0.2          | 40.4                     | 3.2                            |

(1) Total includes doctorate recipients of unknown citizenship.

(2) Subtotal includes doctorate recipients whose engineering fields are not separately shown.

(3) Non-S&E doctorate recipients include those whose field of specialization is unknown.

SOURCE: National Science Foundation/SRS, Survey of Earned Doctorates

59



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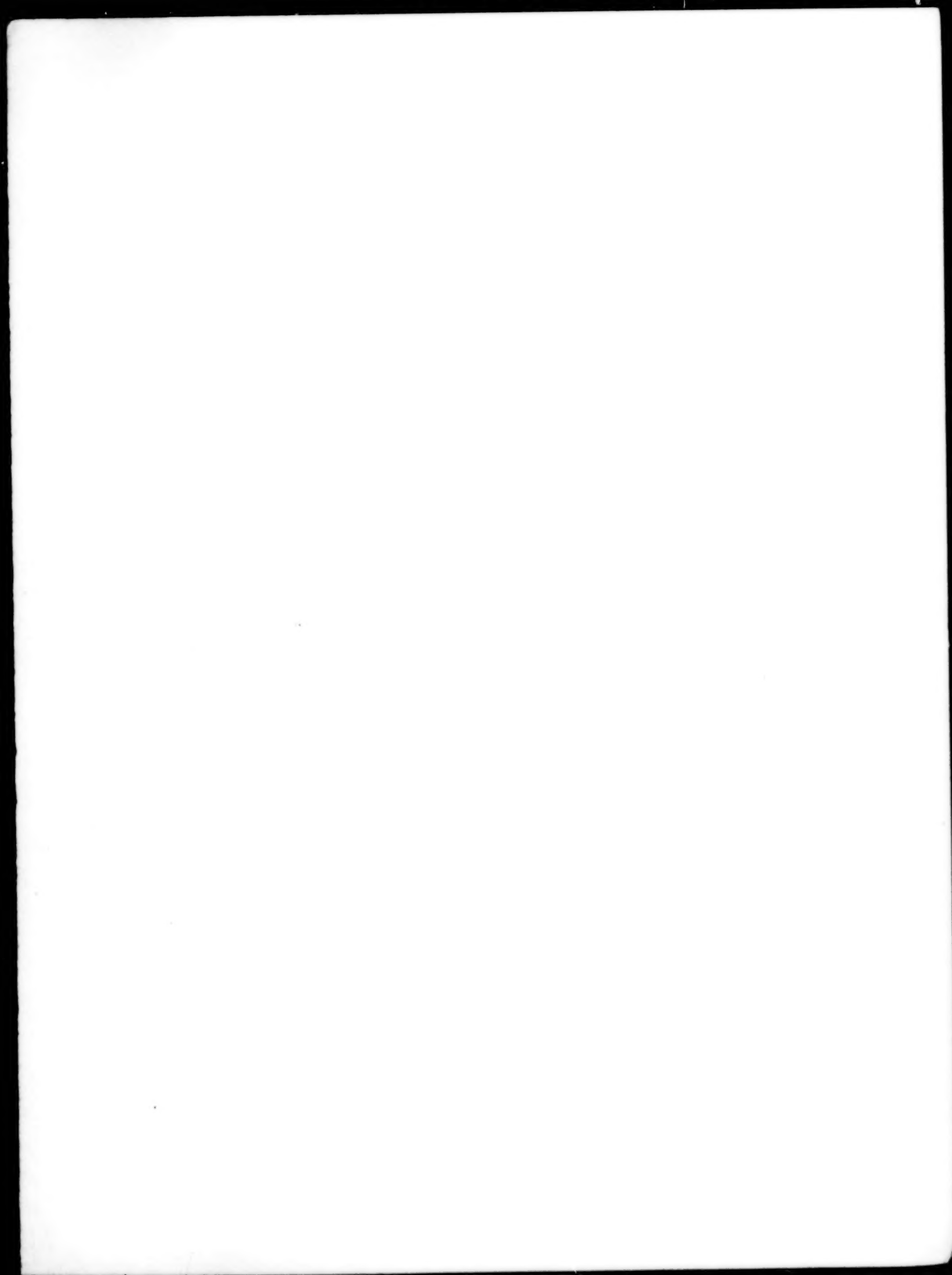
Request: stis  
Topic: stisdirm

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